Eurosoft
computer reliability solutions

Pc-Check® Windows® Test Descriptions

Windows®-based Computer Diagnostic Software

Assuring Computer
Service Reliability

www.eurosoft-uk.com

Eurosoft PC Reliability Solutions

EDF Test Descriptions

EDFTD V11

DISCLAIMER

Note: Windows PE contains a security feature that will cause end user's systems to reboot without prior notification to the end user after 72 hours of continuous use.

Technical Support

Eurosoft (UK) Ltd.
Head Office
3 St. Stephen's Road
Bournemouth
Dorset BH2 6JL
United Kingdom
Tel +44 (0)1202 297315
Fax +44 (0)1202 558280
Email: support@eurosoft-uk.com
Website: www.eurosoft-uk.com

Eurosoft (US) Inc.
Sales Office
706 Jackson Street
Sioux City
IA 51105
United States of America
Tel +1 (888) 980 9595
Fax +1 (866) 615 9384
Email: info@eurosoft-us.com
Website: www.eurosoft-us.com

Support

Europe	Email: support@eurosoft-uk.com
United States	Email: support@eurosoft-us.com

Introduction

The purpose of the EDF Test Descriptions manual is to provide you with an understanding of the specifics involved in running Test Modules. The test descriptions include information about each of the tests, test settings (parameters), error codes that may be returned and possible causes of failure.

This document is provided separately as the test modules are an independent deliverable to be used as part of a program. These use the same test descriptions: however, they have different user interfaces and functionality.

Not all components may be supplied with every product.

Document Structure

The first table that follows lists each Test Group, number and name, and the tests it can provide. Tests requiring Eurosoft test hardware are indicated with an (L) after the test name. Interactive tests (which must be run in interactive mode) are indicated with an (I). Tests which are unavailable under WinPE are listed with the suffix “NPE”.

The next table lists general System Error Codes that may be returned by the tests. i.e. 0x02/3FF.

These Error Codes are made up of two parts; the first part is unique within the Diagnostic Group and is the identifier for the error, this error identifier will never change for a given error within a group. The second part is the Extra Information type that states the format of any extra information associated with an error code when it occurs. The extra information types are listed in the Extra Information Codes section of this document.

The test descriptions in the following sections are arranged numerically by group number and conform to a uniform generic structure. Each section starts with a general overview of the group and the devices it contains. Following this is a table that lists all the tests in the group and summarises the main requirements for the test to run. An ‘•’ in the ‘I’ column indicates the test must be run in Interactive mode as it requires operator interaction or feedback. An ‘•’ in the ‘E’ column indicates that specific Eurosoft hardware (i.e. a loopback plug) is required to run the test. An ‘M’ indicates a media requirement. An ‘•’ in the ‘T’ column indicates that the test uses an interactive test window that will be displayed while the test is running. The next columns indicate which operating systems the test is available under (an ‘•’ indicates the test can be run under that operating system).

The next table ‘Parameters’ lists, for each test that has them, the available parameters, their Default, Minimum and Maximum values and any explanatory notes. In order to avoid unnecessary duplication notes are only given against the first occurrence of the parameter in the table. In some parameters the default or limit may depend on the specific system under test, in these cases the value is given as ‘SDP’ (System Dependant Parameter).

Following Parameters are the individual test descriptions which generally also include an estimate of how long the test will take to run.

Finally for each group there are two tables giving the group specific error codes that the tests may return and a ‘Troubleshooting’ table that lists possible causes of the errors.

Note: For some parameters the maximum value may be defined as MAX_PATH. This is a system defined value of the maximum length of a file name and path and is normally 260 in Microsoft Windows® operating systems.

Note: For Boolean parameters and relevant system information, 1 represents True and 0 represents False.

Note: This document is platform independent and so each Group ID ends with an X. For the 32 bit platform this X is replaced with 0, and for 64 bit the X is replaced with 1.

Platforms

Where applicable the windows diagnostic framework does support the Windows Preinstallation Environment Operating System. However, the supported Windows PE version is always the most up to date from the standard Windows variant supported. In addition, any changes from a standard Windows PE creation may affect the diagnostic testing and therefore Eurosoft takes no responsibility for any results. This is because the Windows Environment that any user creates has not been tested by Eurosoft. Please contact Eurosoft if you do intend testing within Windows PE.

It is strongly recommended that if you do modify the Windows PE environment, all testing across all of your supported systems are re-integrated in order to ensure the results.

In order to perform any testing the environment must meet the minimum Windows requirements. If these requirements are not met or are significantly reduced i.e by reducing the minimum memory by running the Operating System from RAM, Eurosoft takes no responsibility for any testing results.

The table below shows the minimum memory requirement per the Operating system. These as well as any other System requirements recommended by Microsoft must be followed or the results will be unpredictable.

Operating System	X86	Recommended	X64	Recommended
Windows 7	1GB	2GB	2GB	4GB
Windows 8, 10, WINPE ADK 8 or above.	1GB	2GB	2GB	4GB

Pc-Check Windows requires DotNet 4.0 to operate.

Test Results

The overall result of each test will be one of five values:

- Passed: the test ran to completion and no error was found.
- Failed: the test ran but an error was found either with the hardware or an operator selected a Fail.
- Skipped: the test was skipped by the operator.
- Aborted: the test was aborted by the operator.
- Not Available: the system has determined the test cannot be run. The hardware is not present or the test parameters are out of scope.

If ‘Failed’ or ‘Not Available’ the error code will give details of the cause of the failure or the reason the test was not available.

Note: Some tests will populate extra information when a test completes. Where the extra information returns a completed proportion of the device, the Decimal System is used when converting between multiples of units i.e. a KB is 1000 Bytes. Only in the case of Memory the Binary System is used i.e. a KB is 1024 Bytes.

Test Group	Group Name	Tests
20X	Parallel Ports	301 - Data Port 302 - External Loop-back (L) 303 - Status Register (L)
100X	Memory	301 - Quick 302 - Pseudo Random Data 303 - Walking Bit Left 304 - Walking Bit Right 305 - Inverse Walking Bit Left 306 - Inverse Walking Bit Right 307 - Chequerboard 308 - Bit Stuck High 309 - Bit Stuck Low 310 - Pseudo Random Address 311 - Microtopology 312 - Memory Mismatch 313 - Data Route 314 - Windows Built-in Diagnostics (NPE) 315 - Bit Comb
110X	Gyroscope	301 - Core Recognition (NPE) 302 - Quick Status (NPE) 303 - Simple Roll Test (I NPE) 304 - Gyroscope Roll (I NPE) 305 - Noise Test (NPE)
120X	Accelerometer	301 - Core Recognition (NPE) 302 - Quick Status (NPE) 303 - Acceleration (I NPE) 304 - Noise Test (NPE)
130X	Bluetooth	301 - Device Search Test (I NPE) 302 - Device Pairing Test (I NPE)
140X	Keyboard	301 - Keyboard Zone (I) 302 - Keyboard LED (I) 303 - Keyboard Map (I) 304 - Keyboard Dock Detach (I) 305 - Keyboard Connection (I) 306 - Ghost Key
150X	Pointing Devices	301 - Quick Mouse (I) 302 - Mouse Button (I) 303 - Movement (I) 304 - Jitter
180X	Location	301 - Core Recognition (NPE) 302 - Quick Status (NPE) 303 - Location (NPE)

Test Group	Group Name	Tests
221X	Network	301 - Configuration 302 - IPv4 Connection 303 - Wireless Strength (NPE) 304 - Wireless Connection (NPE) 305 - System Connected 306 - Ethernet Connectivity 307 - Loop-back (L) 308 - Intel Adapter Identification Test (I) 309 - Intel Hardware EEPROM Test 310 - Intel Hardware FIFO Test 311 - Intel Hardware Register Test 312 - Intel Hardware Interrupt Test 313 - Intel Loopback Connection Test 314 - Intel External Loopback Test 315 - Intel Link Speed Duplex Test 316 - Intel Link Speed Duplex Offline Test 317 - Intel Cable Length Test 318 - Intel Cable Polarity Test 319 - Intel Local Receiver Test 320 - Intel Remote Receiver Test 321 - Intel Cable Quality Test 322 - Intel Ping Test
260X	Hard Drives	309 - Butterfly Seek 310 - Random Read 311 - Linear Read 312 - S.M.A.R.T. Failure 313 - S.M.A.R.T. Short 314 - S.M.A.R.T. Conveyance 315 - S.M.A.R.T. Extended 317 - Idle Temperature 318 - Instantaneous Temperature 319 - S.M.A.R.T. Threshold 320 - S.M.A.R.T. Custom 321 - Drive Health 322 - Intelligent Disk Scan 323 - Drive Overall Health 324 - ZeroData Disk Erase Test
291X	Modem	

Test Group	Group Name	Tests
310X	USB	301 - Detected Devices (L) 302 - Connectivity (I L) 303 - USB Quick (L) 304 - USB NRZI Max Bit Stuffing (L) 305 - USB NRZI Glitch Zero (L) 306 - USB NRZI Line Oscillation 1 (L) 307 - USB NRZI Line Oscillation 2 (L) 308 - USB NRZI Line Oscillation 3 (L) 309 - USB NRZI Line Oscillation 4 (L) 310 - USB Max Disparity (L) 311 - USB Random Data (L) 312 - USB Speed (L) 313 - Connection Verification (I L)
330X	Floppy Drives	301 - Butterfly Seek 302 - Linear Read 303 - Read Write 304 - Media Change (I) 305 - Write Protect (I)
350X	Monitor	301 - Red Purity (I) 302 - Green Purity (I) 303 - Blue Purity (I) 304 - Mesh (I) 305 - Inverse Mesh (I) 306 - White MEME (I) 307 - Green MEME (I) 308 - Tonality (I) 309 - Grid (I) 310 - LCD Dead Pixel (I) 311 - Monitor Count 312 - Internal Monitor Count 313 - VGA Monitor Count 314 - DVI Monitor Count 315 - HDMI Monitor Count 316 - DisplayPort/USB-C Monitor Count 317 - Wireless Monitor Count 318 - EDID Checksum 319 - Monitor Brightness Test (I) 320 - Colourless Purity (I)
440X	FireWire	301 - IEEE1394 (FireWire)
450X	Serial Ports	301 - Configuration Registers 302 - Quick Loop-back (L) 303 - Baud Rates (L) 304 - Sustained Loop-back (L) 305 - Priority Transmit (L) 306 - Endurance Test (L)

Test Group	Group Name	Tests
530X	Removable Media	301 - Linear Read 302 - Random Read 303 - Connectivity (I NPE) 304 - Media Bad Sector Test 305 - Fake Detection Test
541X	System	301 - Stress 302 - Sleep (I NPE) 303 - Hibernate (I NPE) 304 - Quick Blue Screen Dump (NPE) 305 - Lid Detect (I) 306 - Convertible System (NPE) 307 - Operator Response (I) 308 - Blue Screen Event (NPE)
550X	Processor	301 - Core Instruction Set 302 - Floating Point Instruction Set 304 - SSE Instruction Set 305 - SSE2 Instruction Set 306 - SSE3 Instruction Set 307 - SSE 4.1 Instruction Set 310 - Cache Functionality 311 - SSE 4.2 Instruction Set 312 - SSE 4A Instruction Set 313 - Multi-core 314 - Multi-processor 315 - Core Priority 316 - Thermal Stress 317 - Power Stress 318 - CPU Fan Test 319 - CPU Temperature 320 - AVX Instruction Set 321 - SSSE3 Instruction Set 322 - FMA3 Instruction Set 323 - FMA4 Instruction Set 324 - CLMUL Instruction Set 325 - AES Instruction Set 326 - BT Instruction Set
561X	Audio	302 - Audio Connection (L) 303 - Loop-back Count (NPE L) 304 - Advanced Quality (NPE L) 305 - Quick Microphone (I NPE) 306 - Quick System Sound (I NPE) 307 - Volume Change (I NPE) 308 - Playback (I NPE)

Test Group	Group Name	Tests
570X	Graphics Card	301 - Linear Memory 302 - Microtopology Memory (NPE) 303 - Chaotic Addressing Memory (NPE) 304 - Hardware Acceleration (NPE) 305 - Graphics Card Temperature 306 - Default Driver (NPE) 307 - OpenCL Bandwidth 308 - OpenCL Walking Zeros 309 - OpenCL Walking Ones 310 - OpenCL Moving Inversion 311 - OpenCL Integer Logic 312 - OpenCL Integer Logic (Local Memory) 313 - OpenCL Random 314 - OpenCL Modulo 315 - CUDA Bandwidth 316 - CUDA Walking Zeros 317 - CUDA Walking Ones 318 - CUDA Moving Inversion 319 - CUDA Integer Logic 320 - CUDA Integer Logic (Local Memory) 321 - CUDA Random 322 - CUDA Modulo 323 - CUDA Compute 324 - CUDA Stress 325 - GPU driver crash test 326 - Graphic Engine Particle (NPE) 327 - Graphic Engine Ray Tracing (NPE) 328 - Graphic Engine Physics (NPE)
590X	Video Capture	301 - Capture Driver 302 - Composite Capture Driver (NPE) 303 - S-Video Capture Driver (NPE) 304 - TV Capture Driver (NPE) 305 - RGB Capture Driver (NPE) 316 - Capture (I NPE) 317 - Composite Capture (I NPE) 318 - S-Video Capture (I NPE) 319 - TV Capture (I NPE) 320 - RGB Capture (I NPE) 321 - Image Quality Test (NPE) 322 - IR Camera Presence (NPE)
610X	Battery	303 - Voltage 305 - Performance 306 - Quick State (I) 308 - Core Recognition 309 - Advanced State (I) 310 - Charge Level 311 - Capacity Life

Test Group	Group Name	Tests
620X	Optical	301 - Linear Read 302 - Random Read 303 - Advanced Movement 304 - Media Erase 305 - Directory Write 306 - ISO Image Write 307 - Media Eject
641X	Biometric	301 - Core Recognition (NPE)
670X	Motherboard	301 - North-bridge 302 - South-bridge 303 - CMOS Clock 304 - CMOS Checksum 305 - CMOS Battery 306 - System Fan 307 - Voltage Core Detection 308 - System Temperature 309 - BIOS Password
681X	Operating System	303 - Event Log (NPE) 304 - Kernel Response 305 - Driver (NPE) 306 - Signed Driver (NPE) 308 - Security Support (NPE) 309 - License (NPE) 310 - System Files Check 311 - Time Service Check (NPE) 312 - Window 11 Compatibility
690X	Hardware Monitor	312 - System Temperature 313 - CPU Temperature 314 - CPU Fan 315 - System Fan 316 - Voltage Core Detection Test 318 - Graphics Card Temperature

Test Group	Group Name	Tests
700X	Solid State Drives	301 - Linear Read 302 - Random Read 306 - S.M.A.R.T. Failure 307 - S.M.A.R.T. Short 308 - S.M.A.R.T. Conveyance 309 - S.M.A.R.T. Extended 310 - Idle Temperature 311 - Instantaneous Temperature 312 - S.M.A.R.T. Threshold 313 - S.M.A.R.T. Custom 314 - Wear Range Delta 315 - Drive Health 316 - Intelligent Scan 317 - Drive Overall Health 318 - ZeroData Disk Erase Test
710X	RAID	301 - Linear Read
720X	Touch screen	301 - Pen Grid (I) 302 - Pen Axis (I) 303 - Pen Accuracy (I) 304 - Touch Multi-Touch (I) 305 - Touch Ghost-Touch 306 - Touch Path Continuity (I) 307 - Touch Curve Continuity (I) 308 - Touch Primary Touch (I) 309 - Touch Width (I) 310 - Touch Grid (I) 311 - Touch Axis (I) 312 - Touch Accuracy (I) 313 - Touch Gesture (I NPE)
750X	Compass	301 - Core Recognition (NPE) 302 - Quick Status (NPE) 303 - Direction (I NPE) 304 - Noise Test (NPE)
760X	Ambient Light	301 - Core Recognition (NPE) 302 - Quick Status (NPE) 303 - Ambient Light Level (I NPE)
780X	NVMe Drives	301 - Linear Read 302 - Random Read 303 - S.M.A.R.T. Failure 304 - Idle Temperature 305 - Instantaneous Temperature 306 - Intelligent NVM Scan 307 - ZeroData Disk Erase Test

Test Group	Group Name	Tests
800X	Server	301 - IPMI System Event Log 302 - IPMI Health 303 - IPMI Sensor 304 - IPMI Alarm 305 - Temperature Sensor 306 - Fan Sensor 307 - Voltage Sensor 308 - Power Sensor 309 - Constant Sensor
810X	Trusted Platform Module	301 - TPM Presence 302 - TPM Self 303 - TPM Version

System Error Codes

Error Code	Name
0x30/3FF	Memory Allocation Error
0x31/3FF	Parameter read error
0x32/3FF	Parameter validation error
0x33/3FF	This test is not available on your OS
0x34/3FF	This test requires interactive mode
0x35/3FF	The specified test was not found
0x37/3FF	No testable devices were detected
0x38/3FF	Attribute read error
0x39/3FF	Test run failure
0x3B/01A	Media related test has failed that can be viewed in more detail with Windows® Event Viewer
0x3C/3FF	This test is not available due to UEFI support
0x3D/3FF	This test is still under development and is not available for use

Extra Information Codes

Extra Code	Description
001	Windows® standard error code
002	Loop-back or Eurosoft hardware Detected during testing
003	Percentage achieved during testing
004	Address location of error
005	Drive position for error
006	Read or Write transfer over or under
007	Colour reference of pixel found
008	Windows® Exception code
009	Core that has failed
00A	Media size returned
00B	Failed transfer speed
00C	Exceeded test maximum count threads are stated
00D	Pixel error on screen
00E	Audio output mixer
00F	Audio output and input endpoint

Extra Code	Description
010	Serial port specific error
011	Key code for keyboard error
012	Result that was outside of test tolerances
014	Detected jacks before and after testing (AUDIO specific)
015	S.M.A.R.T. failed attribute
016	Speed that was outside tolerance
017	Time that was outside tolerance in seconds.
018	Charge difference that was outside tolerance
019	Temperature when failing in Centigrade.
01A	Event Style Error can be seen in more detail from Windows® Event Viewer
01B	Under Frame rate
01C	Failed sub device number
080	Test general setting specific to test and relevant to parameter and error e.g battery charge failure would equal charge value
090	Stress specific - Device Identity in top 4 bytes. Windows Exception code in bottom 32 bits
091	Stress specific - Device Identity in top 4 bytes. No other extra.
092	Stress specific - Device Identity in top 4 bytes. Windows standard error in bottom 32 bits
093	Operating System specific - The count of failing items
094	Operating System specific - The category ID of the failing item
095	Operating System specific - The error code from the signing validation
096	Operating System specific - The Windows® licensing status
097	Sensor specific - The state of the sensor
098	Smart attribute that failed and the failed reading.
3FF	No extra information and last error to be used

20X - Parallel Ports

Overview

This is a test group for Parallel Ports. Parallel Ports (sometimes called Line Print Terminal or Local Print Terminal ports) are an almost obsolete style of peripheral interface, superseded by USB and FireWire. The tests verify the performance of the parallel ports as they transmit data, handle interrupts, and perform handshaking with external devices. Loop-back plugs are required for certain tests in order to provide a controlled environment. Ensure that the parallel port is enabled in the system BIOS.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	Data Port						•	•	•
302	External Loop-back		•				•	•	•
303	Status Register		•				•	•	•

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
302	1	Test Error Loop-back Data Bit	1	1	8	The Loop-back bit to use.

Descriptions

301 - Data Port

This test verifies that data can be transferred to and from the data port registers. The base address is determined from the global base address parameter. This test tests the internal portions of the device; it does not test the port connections.

Test Time: 5s

302 - External Loop-back

This test tests the connections to the back of the system case and header pins.

Test Time: 5s

303 - Status Register

This test checks the status register to ensure correct communication is achieved.

Test Time: 1s

Error Codes

Error Code	Name
0x00/3FF	The port test failed.
0x01/3FF	The Loop-back test failed.
0x02/3FF	The register status test failed.

Troubleshooting

Error Code(s)	Potential Reason
0x00/3FF 0x01/3FF 0x02/3FF	The parallel port test failed. This could be due to a faulty device, incorrect data pin or missing loop-backs.

100X - Memory

Overview

This is a group that tests physical memory.

100% of the memory cannot be tested due to certain hardware devices and drivers that load in the Windows® environment. The memory between 641K and 1024K is not tested, as this is where BIOS and other system resources reside. The reported amount of tested memory may vary from one test to another due to background activity of the operating system. Once any test is executed the system maybe slow to respond as the Windows® OS has been reduced to a minimum amount of memory. Any subsequent tests maybe slow to respond whilst windows recovers the memory therefore it is recommended this test is executed last.

If you are executing 32 bit Windows® diagnostics the maximum amount of tested memory is 2GB. It is recommended all external programs are closed whilst executing this test. Any interface running the test will slow down dramatically in response.

Note: If the user tries to stop the running of a memory test or the entire group of tests when the system is busy, there may be a delay in the response.

Note: The Pseudo-random seed is shown twice in the table with the maximum value depending on platform. Only one will be valid and used.

Note: If testing with a duration, for all tests this should be greater than 59 seconds.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	Quick						•	•	•
302	Pseudo Random Data						•	•	•
303	Walking Bit Left						•	•	•
304	Walking Bit Right						•	•	•
305	Inverse Walking Bit Left						•	•	•
306	Inverse Walking Bit Right						•	•	•
307	Chequerboard						•	•	•
308	Bit Stuck High						•	•	•
309	Bit Stuck Low						•	•	•
310	Pseudo Random Address						•	•	•
311	Microtopology						•	•	•
312	Memory Mismatch						•	•	•
313	Data Route						•	•	•

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
314	Windows Built-in Diagnostics						•	•	
315	Bit Comb						•	•	•

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
301	1	Duration	0	0	604800	Time to run the test. (in seconds) The minimum value for this parameter is 60 unless a test on coverage is desired. In this case, 0 should be used.
	2	Coverage	100	1	100	Percentage of maximum testable memory to test.
	5	Memory Allocation	98	50	98	Percentage of memory allocated from available Physical memory to be used for the test.
	8	Muti-Threading	FALSE	FALSE	TRUE	If Multi-Threading should be used for testing memory.
302	1	Duration	0	0	604800	Time to run the test. (in seconds) The minimum value for this parameter is 60 unless a test on coverage is desired. In this case, 0 should be used.
	2	Coverage	100	1	100	Percentage of maximum testable memory to test.
	4	Pseudo Random Seed	0x0	0x0	0xFFFFFFFF FFFFFFFF	Seed used for initialising the Pseudo random number generator. In 32 bit only the first 32 bits are used.
	5	Memory Allocation	98	50	98	Percentage of memory allocated from available Physical memory to be used for the test.
	8	Muti-Threading	FALSE	FALSE	TRUE	If Multi-Threading should be used for testing memory.

Test	Parameter	Name	Default	Min	Max	Note(s)
303	1	Duration	0	0	604800	Time to run the test. (in seconds) The minimum value for this parameter is 60 unless a test on coverage is desired. In this case, 0 should be used.
	2	Coverage	100	1	100	Percentage of maximum testable memory to test.
	5	Memory Allocation	98	50	98	Percentage of memory allocated from available Physical memory to be used for the test.
	8	Muti-Threading	FALSE	FALSE	TRUE	If Multi-Threading should be used for testing memory.
304	1	Duration	0	0	604800	Time to run the test. (in seconds) The minimum value for this parameter is 60 unless a test on coverage is desired. In this case, 0 should be used.
	2	Coverage	100	1	100	Percentage of maximum testable memory to test.
	5	Memory Allocation	98	50	98	Percentage of memory allocated from available Physical memory to be used for the test.
	8	Muti-Threading	FALSE	FALSE	TRUE	If Multi-Threading should be used for testing memory.

Test	Parameter	Name	Default	Min	Max	Note(s)
305	1	Duration	0	0	604800	Time to run the test. (in seconds) The minimum value for this parameter is 60 unless a test on coverage is desired. In this case, 0 should be used.
	2	Coverage	100	1	100	Percentage of maximum testable memory to test.
	5	Memory Allocation	98	50	98	Percentage of memory allocated from available Physical memory to be used for the test.
	8	Muti-Threading	FALSE	FALSE	TRUE	If Multi-Threading should be used for testing memory.
306	1	Duration	0	0	604800	Time to run the test. (in seconds) The minimum value for this parameter is 60 unless a test on coverage is desired. In this case, 0 should be used.
	2	Coverage	100	1	100	Percentage of maximum testable memory to test.
	5	Memory Allocation	98	50	98	Percentage of memory allocated from available Physical memory to be used for the test.
	8	Muti-Threading	FALSE	FALSE	TRUE	If Multi-Threading should be used for testing memory.

Test	Parameter	Name	Default	Min	Max	Note(s)
307	1	Duration	0	0	604800	Time to run the test. (in seconds) The minimum value for this parameter is 60 unless a test on coverage is desired. In this case, 0 should be used.
	2	Coverage	100	1	100	Percentage of maximum testable memory to test.
	5	Memory Allocation	98	50	98	Percentage of memory allocated from available Physical memory to be used for the test.
	8	Muti-Threading	FALSE	FALSE	TRUE	If Multi-Threading should be used for testing memory.
308	1	Duration	0	0	604800	Time to run the test. (in seconds) The minimum value for this parameter is 60 unless a test on coverage is desired. In this case, 0 should be used.
	2	Coverage	100	1	100	Percentage of maximum testable memory to test.
	5	Memory Allocation	98	50	98	Percentage of memory allocated from available Physical memory to be used for the test.
	8	Muti-Threading	FALSE	FALSE	TRUE	If Multi-Threading should be used for testing memory.

Test	Parameter	Name	Default	Min	Max	Note(s)
309	1	Duration	0	0	604800	Time to run the test. (in seconds) The minimum value for this parameter is 60 unless a test on coverage is desired. In this case, 0 should be used.
	2	Coverage	100	1	100	Percentage of maximum testable memory to test.
	5	Memory Allocation	98	50	98	Percentage of memory allocated from available Physical memory to be used for the test.
	8	Muti-Threading	FALSE	FALSE	TRUE	If Multi-Threading should be used for testing memory.
310	1	Duration	0	0	604800	Time to run the test. (in seconds) The minimum value for this parameter is 60 unless a test on coverage is desired. In this case, 0 should be used.
	2	Coverage	100	1	100	Percentage of maximum testable memory to test.
	4	Pseudo Random Seed	0x0	0x0	0xFFFFFFFF FFFFFFFF	Seed used for initialising the Pseudo random number generator. In 32 bit only the first 32 bits are used.
	5	Memory Allocation	98	50	98	Percentage of memory allocated from available Physical memory to be used for the test.
	8	Muti-Threading	FALSE	FALSE	TRUE	If Multi-Threading should be used for testing memory.

Test	Parameter	Name	Default	Min	Max	Note(s)
311	1	Duration	0	0	604800	Time to run the test. (in seconds) The minimum value for this parameter is 60 unless a test on coverage is desired. In this case, 0 should be used.
	2	Coverage	100	1	100	Percentage of maximum testable memory to test.
	5	Memory Allocation	98	50	98	Percentage of memory allocated from available Physical memory to be used for the test.
	8	Muti-Threading	FALSE	FALSE	TRUE	If Multi-Threading should be used for testing memory.
313	1	Duration	300	120	604800	Time to run the test. (in seconds) The minimum value for this parameter is 60 unless a test on coverage is desired. In this case, 0 should be used.
	6	Maximum Failures	1	1	100	Maximum errors before a test failure occurs.
314	7	Number of days	1	1	90	Number of back days for which log should be checked for testing logs.
315	1	Duration	0	0	604800	Time to run the test. (in seconds) The minimum value for this parameter is 60 unless a test on coverage is desired. In this case, 0 should be used.
	2	Coverage	100	1	100	Percentage of maximum testable memory to test.
	5	Memory Allocation	98	50	98	Percentage of memory allocated from available Physical memory to be used for the test.
	8	Muti-Threading	FALSE	FALSE	TRUE	If Multi-Threading should be used for testing memory.

Descriptions

301 - Quick

Writes pattern 0xC into memory and verifies that it was stored correctly.

302 - Pseudo Random Data

Writes pseudo-random patterns into memory and verifies that they were stored correctly.

303 - Walking Bit Left

Walks a 1 bit through a byte of 0's from right to left shifting it 1 bit at a time.

304 - Walking Bit Right

Walks a 1 bit through a byte of 0's from left to right shifting it 1 bit at a time.

305 - Inverse Walking Bit Left

Walks a 0 bit through a byte of 1's from right to left shifting it 1 bit at a time.

306 - Inverse Walking Bit Right

Walks a 0 bit through a byte of 1's from left to right shifting it 1 bit at a time.

307 - Chequerboard

Writes pattern 0xA into memory and verifies that it was stored correctly. Then writes pattern 0x5 and verifies that this pattern was also stored correctly.

308 - Bit Stuck High

Writes all memory bits as 1, then writes all memory bits as 0. Verifies that all memory is now 0.

309 - Bit Stuck Low

Writes all memory bits as 0, then writes all memory bits as 1. Verifies that all memory is now 1.

310 - Pseudo Random Address

Writes pseudo-random data to pseudo-random addresses using a sequence generated with the start seed value. After memory is filled with data, the sequence is repeated to verify memory stored the values correctly.

311 - Microtopology

This test uses a complex mathematical addressing method designed to stimulate physically adjacent bit cells, effective even where the precise physical arrangement of the device is unknown. Having proved itself in the field as an exceptionally effective test, this test has also proven to be very sensitive to issues of noise and timing in the memory system design as a whole.

312 - Memory Mismatch

This test checks memory references across the system to detect memory slots that have not registered properly with Windows®.

Test Time: 1 second.

313 - Data Route

This test writes a set of test data into memory using one core, before checking the data written using the other processor cores.

314 - Windows Built-in Diagnostics

This test checks the Windows® Built-in testing for any result logs and will return their last result up to the specified time period.

315 - Bit Comb

Set alternating bits to 1 and 0 at a range of different frequency and polarity.

Error Codes

Error Code	Name
0x00/3FF	Mismatch of memory.
0x01/001	Unknown communication failure.
0x02/3FF	Memory failed integrity check.
0x04/004	Memory writing error during test.
0x07/001	Error attempting to obtain or free memory to test.
0x08/3FF	Duration parameter invalid.
0x09/001	Failure to create process to execute memory tests.
0x0A/3FF	Unknown memory result.
0x0B/3FF	Internal error.
0x11/008	General Windows® Exception during memory tests.
0x12/3FF	Unable to gather all required information about system memory.
0x13/3FF	Failed to read diagnostic records from event log.

Troubleshooting

Error Code(s)	Potential Reason
0x00/3FF 0x02/3FF 0x04/004 0x07/001 0x11/008 0x13/3FF	The data written and read did not match or information was unable to be read from the memory. The memory appears to be faulty.
0x08/3FF	Parameter error associated with duration. Duration should be at least 60 seconds.
0x01/001 0x09/001 0x0A/3FF 0x0B/3FF 0x12/3FF	This error is either caused by the memory or is a Windows® Related Error. Retest with operating system group.
0x13/3FF	Windows Memory Diagnostics may not have been run. To launch the Windows Memory Diagnostic tool, open the Start menu, type Windows Memory Diagnostic, and press Enter.

110X - Gyroscope

Overview

A gyroscope is a device that measures angular rotational velocity and is often used to detect if the system is rotated, tilted or turned over.

Some smart-phones and tablets contain gyroscopes for user interface control. Often the gyroscope is used in conjunction with an accelerometer to present landscape or portrait views of the device's screen, based on the way the device is being held.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	Core Recognition							•	
302	Quick Status							•	
303	Simple Roll Test	•			•			•	
304	Gyroscope Roll	•			•			•	
305	Noise Test				•			•	

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
303	1	Time-out	30	10	300	Test time-out.
304	1	Time-out	30	10	300	Test time-out.
	2	Range Sensitivity	20	1	100	Gyroscope range sensitivity in percentage.
305	1	Time-out	30	10	300	Test time-out.
	3	Sample Size	500	500	10000	Gyroscope angular velocity samples for noise testing
	4	Cluster Size	20	20	500	Gyroscope angular velocity cluster size for noise testing

Descriptions

301 - Core Recognition

The Core Recognition test checks the gyroscope to ensure it is connected and detected properly.

Test Time: 1 Second.

302 - Quick Status

The Quick Status test checks the status of the gyroscope to ensure that it is fully functional.

Test Time: 1 Second.

303 - Simple Roll Test

The test will check the orientation of the device, the test will pass once the device has achieved rotation in all 6 main directions. The operator is requested to:

1. Rotate the tablet such that the screen faces the operator. This might be portrait or landscape depending on system.

2. Turn 90 degrees from step 1.

3. Turn 90 degrees from step 2.

4. Turn 90 degrees from step 3.

5. Rotate the tablet such that the screen faces up.

6. Rotate the tablet such that the screen faces down.

Test Time: 30 Seconds.

304 - Gyroscope Roll

The test will check the rotation of the device mimicking a 'steering wheel'. The test will pass once the device has achieved rotation in all 4 main directions as described below. - tablet angled forwards down (equivalent to the plane going to earth) - Tablet angled upwards (equivalent to the plane moving away from earth) - tablet angled left (equivalent to the plane banking left) - tablet angled right (equivalent to a plane banking right)

Test Time: Depends on the time-out parameter specified by the operator.

305 - Noise Test

This test checks noise in angular velocity measurement of the gyroscope sensor, If the noise is within the acceptable threshold then this test returns Success.

Error Codes

Error Code	Name
0x00/3FF	The sensor was not found.
0x01/3FF	The sensor failed to start.
0x02/3FF	Access to the sensor was denied.
0x03/3FF	The sensor has encountered an error.
0x04/097	The sensor is in an unknown state.
0x05/001	Unable to create test window.
0x06/3FF	The test timed out.
0x07/3FF	The Operator chose to fail the test.
0x08/3FF	Required files to perform the test are missing from the diagnostic directory.
0x09/3FF	Unable to set rotation of the system.
0x0A/3FF	Noise level above the threshold for this sensor.

Troubleshooting

Error Code(s)	Potential Reason
0x00/3FF 0x01/3FF 0x02/3FF 0x03/3FF 0x04/097	The sensor was not detected. This could be caused by faulty drivers or a loose connection.
0x05/001 0x06/3FF 0x0A/3FF	Creation of the interactive window failed or the test timed out. Most likely an operating system error.
0x07/3FF	The interactive test failed since the operator cancelled the test. Please consult the operator for more information.
0x08/3FF	Required files to perform the test are missing from the diagnostic directory.
0x09/3FF	The interactive test requires rotation to be disabled. Check your system settings.

120X - Accelerometer

Overview

An accelerometer is a device that measures linear acceleration of movement and is often used to detect if the system is dropped, picked up or interacted with using motions.

Some smart-phones and tablets contain accelerometers for user interface control. Often the accelerometer is used in conjunction with a gyroscope to present landscape or portrait views of the device's screen, based on the way the device is being held.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	Core Recognition							•	
302	Quick Status							•	
303	Acceleration	•			•			•	
304	Noise Test				•			•	

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
303	1	Time-out	30	10	300	Test time-out parameter whilst awaiting user interaction in seconds.
	3	Sample Size	500	500	10000	Accelerometer Number of samples for noise testing.
	4	Cluster Size	20	10	250	Accelerometer size of average cluster, smaller it, better it will be able to pick measurement inaccuracies.
304	1	Time-out	30	10	300	Test time-out parameter whilst awaiting user interaction in seconds.
	3	Sample Size	500	500	10000	Accelerometer Number of samples for noise testing.
	4	Cluster Size	20	10	250	Accelerometer size of average cluster, smaller it, better it will be able to pick measurement inaccuracies.

Descriptions

301 - Core Recognition

The Core Recognition test checks the accelerometer to ensure it is connected and detected properly.

Test Time: 1 Second.

302 - Quick Status

The Quick Status test checks the status of the accelerometer to ensure that it is fully functional.

Test Time: 1 Second.

303 - Acceleration

The acceleration test checks the measurements of acceleration in three directions. The interactive test requests moves the system from left to right, right to left, up-down, down-up, forward-reverse and reverse-forward direction. The test succeeds once the detected acceleration in each axis exceeds 20% as default of the sensors capable acceleration range.

Test Time: Depends on the time-out parameter set by the user.

304 - Noise Test

The Noise test checks the accelerometer noise in acceleration measurements. If noise is within acceptable threshold then this test returns success.

Test Time: 1 Second.

Error Codes

Error Code	Name
0x00/3FF	The sensor was not found.
0x01/3FF	The sensor failed to start.
0x02/3FF	Access to the sensor was denied.
0x03/3FF	The sensor has encountered an error.
0x04/097	The sensor is in an unknown state.
0x05/001	Unable to create an interactive test window.
0x06/3FF	The test timed out whilst awaiting user interaction.
0x07/3FF	The Operator chose to fail the test.
0x08/3FF	Required files to perform the test are missing from the diagnostic directory.
0x09/3FF	Error attempting to read minimum and maximum range.
0x0A/3FF	Error attempting to control screen rotation.
0x0B/3FF	Noise above the threshold for the sensor

Troubleshooting

Error Code(s)	Potential Reason
0x00/3FF 0x01/3FF 0x02/3FF 0x03/3FF 0x04/097	The sensor was not detected. This could be caused by faulty drivers or a loose connection.
0x05/001 0x06/3FF	Creation of the interactive window failed or the test timed out. Most likely an operating system error.
0x07/3FF	The interactive test failed since the operator cancelled the test. More information on failure should be requested from the user.
0x08/3FF	Required files to perform the test are missing from the diagnostic directory. Check the deliverable to ensure no files are missing or deleted.
0x09/3FF 0x0B/3FF	In order to perform some tests the minimum and maximum range of acceleration in G must be supported. This device does not have that capability.
0x0A/3FF	Screen rotation must be disabled to control tests otherwise this will effect. Most likely an operating system issue.

130X - Bluetooth

Overview

Bluetooth is a wireless technology standard for short wave, short distance data exchange between fixed and mobile devices in specified bands and Personal area networks (PANs). This group identifies Bluetooth controllers and tests the connectivity and identification of client devices.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	Device Search Test	•			•		•	•	
302	Device Pairing Test	•			•		•	•	

Parameters

Descriptions

301 - Device Search Test

The Bluetooth Device Search test will search for devices within the defined Received Signal Strength Indicator (RSSI) strength and enumerate them in the test window.

Test Time: Dependent on user input.

302 - Device Pairing Test

The Bluetooth Device Connection test will initialise an authentication session between the host and client. Authentication mode is determined by the supported mode of the client, It could be legacy using a PIN, Numerical or Pass Key. A successful pairing is considered a successful data connection and will pass the test.

Test Time: Dependent on test parameters.

Error Codes

Error Code	Name
0x00/3FF	The user clicked the fail button
0x01/001	The test window could not be created
0x02/3FF	The user did not respond
0x03/008	General Windows® Exception during tests
0x04/017	The current time was incorrect
0x05/3FF	Required files to perform the test are missing from the diagnostic directory.
0x06/3FF	Failed to register callback, System internal error
0x07/3FF	Failed to authenticate

Troubleshooting

Error Code(s)	Potential Reason
0x00/3FF 0x02/3FF	The user did not pass the test. The user has knowledge of the reason why the test failed or timed out.
0x01/001	The test window failed to be created.
0x03/008 0x04/017 0x06/3FF 0x07/3FF	An error occurred while testing.
0x05/3FF	Required files to perform the test are missing from the diagnostic directory.

140X - Keyboard

Overview

This group covers system information gathering and testing of keyboards.

The Keyboard Zone and Map Tests offer different processes for testing the Keyboards connected to your system. It is not necessary to run both tests for full coverage. Therefore it is recommended to only run the test configured in the way you find most appropriate for your process.

To create a Zone test configuration it is recommended to create a copy of the 104 key configuration and remove any unwanted keys from the file using a text file editor.

Please contact Eurosoft if additional keyboard layouts are required for the Map test.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	Keyboard Zone	•			•		•	•	•
302	Keyboard LED	•			•		•	•	•
303	Keyboard Map	•					•	•	•
304	Keyboard Dock Detach	•			•		•	•	•
305	Keyboard Connection	•			•		•	•	•
306	Ghost Key				•		•	•	•

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
301	1	Test Configuration	"EDF\\xtra\\140X\\English_8Keys.txt"	5	MAX_PATH	The internal configuration file to use for the test. This file is created using the Advanced Window if the key-count parameter is not set. If the key-count is set then this parameter should be set to one of the Auto-fill identifiers listed on the Advanced Window.
	2	Contact Bounce Time	0	0	2000	The contact bounce time in Ms between each key check. A value greater than 0 will run the test in Ordered mode and a value of 0 will run in Unordered mode.
	3	Time-out	10	0	60	The time-out between key presses before the test will fail. If set to 0 then a fail button will be shown.
302	4	Time-out	15	0	60	The time-out for waiting for a response from the operator.

Test	Parameter	Name	Default	Min	Max	Note(s)
303	2	Contact Bounce Time	0	0	2000	The contact bounce time in Ms between each key check. A value greater than 0 will run the test in Ordered mode and a value of 0 will run in Unordered mode.
	3	Time-out	15	0	60	The time-out between key presses before the test will fail. If set to 0 then a fail button will be shown.
	6	Keyboard Configuration	""	0	MAX_PATH	The keyboard configuration to use. If not set, a list will be shown when the test is run.
	7	Minimum keys to pass	1	0	512	The minimum number of keys that must be pressed to enable pass.
	9	Allow Configuration Selection	TRUE	FALSE	TRUE	Allow the keyboard configuration to be changed.
304	3	Time-out	60	0	60	The time-out between key presses before the test will fail. If set to 0 then a fail button will be shown.
305	3	Time-out	30	0	60	The time-out between key presses before the test will fail. If set to 0 then a fail button will be shown.
	5	Key Count	10	1	255	The number of keys expected.
306	8	Duration	15	1	300	The duration of the test.

Descriptions

301 - Keyboard Zone

The Keyboard Zone Test is designed to test the different key zones that make up the internals of keyboards, allowing a basic functional test with minimal key presses. This test has two modes of use to cover the ways a keyboard can be tested.

The keyboard can be tested in Ordered mode, where key presses are expected in the order defined in the configuration file and each key press checked for contact bounce or additional key presses. This mode of operation is best suited for checking key zones on laptop keyboards.

The other mode of operation is Unordered mode where keys can be pressed in any order. Each key in the configuration file will need to be pressed, with additional key presses ignored. Once all the keys have been pressed the test passes. This mode of operation is best suited for mechanical keyboards with a larger configuration file.

Test Time: Dependent on user input.

302 - Keyboard LED

The LED test will activate and deactivate the Num lock, Scroll lock and Caps lock LEDs on the keyboards connected to the system to confirm their operation.

Test Time: Dependent on user input.

303 - Keyboard Map

The Keyboard Map Test is designed for a full test of a keyboard's key functionality.

A visual representation of the selected keyboard configuration will be shown, with the keys highlighted when key presses are detected. A contact bounce time is also configurable. If any key is detected within the contact bounce time of the previous key the test will fail.

The keyboard configuration file can be configured by the test parameters and if not set, then a drop down list of the keyboard configuration files in the 80X diagnostic extra directory will be shown The configuration file selected will define the locations of the keys on the visual keyboard.

Note: After the number of different keys set by the Target keys parameter have been pressed, the pass button will be enabled.

Note: Pressing the escape key twice in a row will allow the test to be exited before the time-out or all keys have been pressed.

Note: Please contact Eurosoft if additional keyboard layouts are required.

Test Time: Dependant on user input.

304 - Keyboard Dock Detach

The Keyboard Dock Detach test will check the disconnect and reconnect of a docked keyboard. The operator will be prompted first to disconnect from the keyboard before reconnecting and pressing any key.

Note: Care should be taken to ensure that the testing application is not running or licensed to a device connected to the dock.

Test Time: Dependent on user input.

305 - Keyboard Connection

The Keyboard Connection test will check the stability of a keyboard's connection. The operator will be prompted to press a number of keys in quick succession to ensure the connection remains stable.

Test Time: Dependent on user input.

306 - Ghost Key

The Keyboard Ghost test will check for any stuck or erroneous key presses and will fail if any keys are detected.

Test Time: Dependent on time-out parameter.

Error Codes

Error Code	Name
0x00/3FF	Unable to load any keys to test.
0x01/3FF	Unable to load the test configuration file.
0x02/001	Unable to get the keyboard.
0x03/001	Unable to create test window.
0x04/3FF	The Operator chose to fail the test.
0x05/011	The wrong key press was detected.
0x06/011	Another key was detected during the contact bounce time.
0x07/3FF	The test timed out.
0x08/3FF	The keyboard configuration is invalid.
0x09/3FF	The keyboard can not be un-docked.
0x0A/011	A key press or held key was detected

Troubleshooting

Error Code(s)	Potential Reason
0x00/3FF 0x01/3FF	The specified Key configuration file was not successfully loaded. Check that the file is present and contains keys to be tested.
0x02/001 0x03/001 0x08/3FF	The test failed to start. This is most likely caused by a hardware or OS fault.
0x04/3FF 0x05/011 0x06/011 0x07/3FF 0x09/3FF 0x0A/011	The test failed due to a possible fault with the hardware or due to operator error.

150X - Pointing Devices

Overview

This group covers system information gathering and testing of Pointing devices, usually these are Mice or Touchpads.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	Quick Mouse	•			•		•	•	•
302	Mouse Button	•			•		•	•	•
303	Movement	•			•		•	•	•
304	Jitter				•		•	•	•

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
301	1	Time-out	15	0	60	The time-out for waiting for a response from the operator.
302	1	Time-out	15	0	60	The time-out for waiting for a response from the operator.
	6	Test Middle Mouse Click	FALSE	FALSE	TRUE	If the middle mouse button click should be tested.
	9	Mouse Wheel Override	2	0	2	Mouse Wheel Override, set 0 to exclude, 1 to include and 2 to automatically detect mouse wheel support.
303	1	Time-out	15	0	60	The time-out for waiting for a response from the operator.
	3	Start-up Delay	5	0	60	The start up delay time in seconds before the test commences.
	4	Ring Size	125	100	500	The size of the ring the user will need to guide the cursor inside.
	5	Inner Ring Size	25	1	99	The size of the inner ring the user will need to guide the cursor inside. This is a percentage of the total ring size.
	10	Allow Retries	FALSE	FALSE	TRUE	If set allows the test to be reattempted on failure.
304	7	Movement Threshold	5	1	150	The threshold of movement that will cause the test to fail.
	8	Duration	15	1	300	The duration of the test.

Descriptions

301 - Quick Mouse

The Quick Mouse Test will display two boxes box that must be clicked to pass the test. The left green box will require a left click, while the right blue box will require a right click. The test will pass once both buttons have been pressed.

Test Time: Dependent on user input.

302 - Mouse Button

The Button Test will prompt for mouse buttons to be pressed. This will test each of the requested buttons for correct functionality.

Test Time: Dependent on user input.

303 - Movement

The Movement Test will display a ring for the mouse to to be moved around to test mouse tracking functionality.

Test Time: Dependent on user input.

304 - Jitter

The Jitter Test will place the mouse cursor on screen and monitor to make sure it does not move.

Test Time: Dependent on time-out parameter.

Error Codes

Error Code	Name
0x01/001	Unable to create test window.
0x02/3FF	The Operator chose to fail the test.
0x03/3FF	The test timed out.
0x04/001	Unable to get the mouse.
0x05/3FF	The cursor moved outside the test ring.
0x06/3FF	The cursor moved back into a tested area.

Troubleshooting

Error Code(s)	Potential Reason
0x01/001 0x04/001	The test failed to start. This is most likely caused by a hardware or OS fault.
0x02/3FF 0x03/3FF 0x05/3FF 0x06/3FF	The test failed due to a possible fault with the hardware or due to operator error.

180X - Location

Overview

The location functionality is provided by one of a number of sensors including Global Positioning System.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	Core Recognition							•	
302	Quick Status							•	
303	Location				•			•	

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
303	1	Time-out	30	10	300	Test time-out.
	2	Latitude Value	0	-90	90	Latitude.
	3	Longitude Value	0	-180	180	Longitude.
	4	Location Tolerance - latitude	5	0	100	Latitude tolerance in percent.
	5	Location Tolerance - longitude	5	0	100	Longitude tolerance in percent.

Descriptions

301 - Core Recognition

The Core Recognition test checks the location device to ensure it is connected and detected properly.

Test Time: 1 Second.

302 - Quick Status

The Quick Status test checks the status of the location sensor to ensure that it is fully functional. At certain instances the sensor status may be in initializing stage where the sensor driver is trying to acquire a fix. The sensor driver should pass this state after a fix is locked and tracked. The Quick Status test is passed if the location sensor is in an initializing stage and yet the sensor data are available.

Test Time: 1 Second.

303 - Location

This test has an non-interactive and an interactive test mode. In the non-interactive variant, the correct longitude and latitude require being set within a given tolerance value. The interactive test shows a map of the world and the identified geographic location using an icon. The Operator then selects pass or fail depending on the identified geographic location. Two general types of location sensors are present in systems, they can be either a physical Global Positioning System sensor or a triangulation device. In a physical Global Positioning System sensor, line of sight with satellites is expected to initialize the test. In an enumerated location sensor (Such as Windows Location Provider) a working wireless connection is required to find the location.

Test Time: 1 Second for the non interactive test. Interactive test time would depend on the time-out parameter given by the operator.

Error Codes

Error Code	Name
0x00/3FF	The sensor was not found.
0x01/3FF	The sensor failed to start.
0x02/3FF	Access to the sensor was denied.
0x03/3FF	The sensor has encountered an error.
0x04/097	The sensor is in an unknown state.
0x05/001	Unable to create test window.
0x06/3FF	The test timed out.
0x07/3FF	The Operator chose to fail the test.
0x08/3FF	Required bitmaps are missing.
0x09/3FF	The location read is outside of tolerance.

Troubleshooting

Error Code(s)	Potential Reason
0x00/3FF 0x01/3FF 0x02/3FF 0x03/3FF 0x04/097	The sensor was not detected. This could be caused by faulty drivers or a loose connection.
0x05/001 0x06/3FF	Creation of the interactive window failed or the test timed out. Most likely a an operating issue.
0x07/3FF	The interactive test failed since the operator cancelled the test. Please consult the operator for more information.
0x08/3FF	Required bitmap resources are missing.
0x09/3FF	The location from the sensor is outside of the tolerance for the test. This may be caused by a faulty sensor, issue reading the location or an incorrect test parameter. If the sensor type is Global Positioning System, then line of sight is required. If the sensor type is triangulation using wireless, signal strength should be confirmed.

221X - Network

Overview

This group is designed to test Network Adaptors.

A network adapter (also known as a network interface card, network interface controller, LAN adapter and by similar terms) is a computer hardware component that connects a computer to a network. The network physical layer can be implemented as an ethernet or wireless 802.11 standard. Interface controllers can be implemented on expansion cards that are plugged into a computer bus or built into the motherboard.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	Configuration						•	•	•
302	IPv4 Connection						•	•	•
303	Wireless Strength						•	•	
304	Wireless Connection						•	•	
305	System Connected						•	•	•
306	Ethernet Connectivity				•		•	•	•
307	Loop-back		•				•	•	•
308	Intel Adapter Identification Test	•			•		•	•	•
309	Intel Hardware EEPROM Test						•	•	•
310	Intel Hardware FIFO Test						•	•	•
311	Intel Hardware Register Test						•	•	•
312	Intel Hardware Interrupt Test						•	•	•
313	Intel Loopback Connection Test						•	•	•
314	Intel External Loopback Test						•	•	•
315	Intel Link Speed Duplex Test						•	•	•
316	Intel Link Speed Duplex Offline Test						•	•	•
317	Intel Cable Length Test						•	•	•
318	Intel Cable Polarity Test						•	•	•
319	Intel Local Receiver Test						•	•	•
320	Intel Remote Receiver Test						•	•	•
321	Intel Cable Quality Test						•	•	•
322	Intel Ping Test						•	•	•

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
302	1	Target IP	"0.0.0.0"	7	15	The IPv4 address to connect.
	2	Target Name	""	0	255	The connection target's name; If set, this takes priority over IP.
	7	Ping Packet Size	32	28	65500	The size in bytes of the ping packet.
	9	Time-out	5	0	120	The time-out for user response.
303	3	Strength Threshold	60	5	100	The Wireless strength threshold.
304	3	Strength Threshold	60	5	100	The Wireless strength threshold.
	4	Target SSID	""	0	255	The Service Set Identifier (SSID) of the access point to use. If empty then the access point already connected will be used.
	5	Target Password	""	0	255	The password to connect to the supplied SSID.
	6	Connection Time-out	10	0	300	The time to wait for a connection to be made.
306	8	Mode	0	0	1	The test mode. True if the test should be run non-interactively.
	9	Time-out	30	0	120	The time-out for user response.
307	10	Duration	60	60	604800	The duration of the test.

Descriptions

301 - Configuration

This is a configuration test on the network card to ensure that it can be configured for communication. The test also includes managing the Windows® driver.

Test Time: 5s

302 - IPv4 Connection

The IPv4 Connection test ensures two way communication between an end IPv4 Address or Host-name. This test will check that the Network card memory TCP\IP protocol stack can be loaded and that the network card configuration operates for communication purposes. It also establishes that the socket electrical contacts or WIFI radio are within tolerance.

Note: This is designed to test the network adapter and is not suitable to be used for testing your network or cabling.

Note: Two way communication is required for this test to operate and load the card therefore an efficient route to the target IP address is recommended.

Note: A valid IP address or Host Name parameter should be entered before running this test or the test will return Not Available.

Note: The IP address used should not be of a network adaptor present on the system.

Note: The local loop-back (127.0.0.1) address can not be used as this will not test the card.

Test Time: Approximately 5s but is network dependant.

303 - Wireless Strength

The Wireless Strength test checks the signal strength of the nearby wireless access points. If no signal is greater than the threshold set then the test will fail.

Note: Please contact Eurosoft to run this test on Windows® PE.

Test Time: 1s

304 - Wireless Connection

This test can be started in two different ways. If an SSID is supplied then the test will first connect to the access point. If no SSID is supplied then the existing wireless connection will be used.

The test will then check the signal strength of the connected access point. If the signal strength is lower than the threshold then the test will fail.

Note: Please contact Eurosoft to run this test on Windows® PE.

Test Time: Dependent on parameters.

305 - System Connected

This test checks the most basic network connection is available for the entire system. This test can be applied to all devices but because it is a system test it is only worthwhile running on one.

Test Time: 1s

306 - Ethernet Connectivity

This test checks that an Ethernet adaptor can be detected when inserted or removed. When this test is run with the mode parameter set to 0, the test will be run interactively and will request for the cable to be removed and inserted. When this test is run with the mode parameter set to 1, the test will run non-interactively and will pass if a cable is detected.

Note: A loop-back cable or cable connected to a router or system should be used to be detected by this test. A cable that is not connected will not be detected.

Test Time: Dependent on user input.

307 - Loop-back

This test checks the transmit and receive functionality of the network adapter using a network loop-back. Please ensure you use the network loop-back from Eurosoft.

Note: A loop-back cable is required for this test. A cable that is not connected will not be detected.

Note: Insert Eurosoft Network loopback device wait a few seconds and if there is not a orange (10/100) or green (Gigabit) light then insert a powered Ethernet switch and insert the loopback device accordingly.

Test Time: Dependent on test parameter.

308 - Intel Adapter Identification Test

This is Intel Proset driver built in test. On a multi adapter system it identifies adapter. Test will blink adapter send receive LED for a certain period for the user to confirm that adapter has been identified.

Note: This test is available only if an Intel Proset chipset adapter is installed with Intel Pro set driver. When hardware tests are running, the adapter cannot communicate with the network.

309 - Intel Hardware EEPROM Test

This is Intel Proset driver built in hardware test. It tests network Adapter's EEPROM.

Note: This test is available only if an Intel Proset chipset adapter is installed with Intel Pro set driver. When hardware tests are running, the adapter cannot communicate with the network.

310 - Intel Hardware FIFO Test

This is Intel Proset driver built in hardware test. It tests network Adapter's FIFO.

Note: This test is available only if an Intel Proset chipset adapter is installed with Intel Pro set driver. When hardware tests are running, the adapter cannot communicate with the network.

311 - Intel Hardware Register Test

This is Intel Proset driver built in hardware test. It tests network Adapter's registers.

Note: This test is available only if an Intel Proset chipset adapter is installed with Intel Pro set driver. When hardware tests are running, the adapter cannot communicate with the network.

312 - Intel Hardware Interrupt Test

This is Intel Proset driver built in hardware test. It tests network Adapter's interrupts.

Note: This test is available only if an Intel Proset chipset adapter is installed with Intel Pro set driver. When hardware tests are running, the adapter cannot communicate with the network.

313 - Intel Loopback Connection Test

This is Intel Proset driver built in adapter connection test. It tests network Adapter's quick loopback functionality.

Note: This test is available only if an Intel Proset chipset adapter is installed with Intel Pro set driver.

314 - Intel External Loopback Test

This is Intel Proset driver built in adapter connection test. It tests network Adapter's link connection functionality.

Note: This test is available only if an Intel Proset chipset adapter is installed with Intel Pro set driver.

315 - Intel Link Speed Duplex Test

This is Intel Proset driver built in adapter connection test. It tests network Adapter's link speed duplex functionality.

Note: This test is available only if an Intel Proset chipset adapter is installed with Intel Pro set driver.

316 - Intel Link Speed Duplex Offline Test

This is Intel Proset driver built in adapter connection test. It tests network Adapter's link offline speed duplex functionality.

Note: This test is available only if an Intel Proset chipset adapter is installed with Intel Pro set driver.

317 - Intel Cable Length Test

This is Intel Proset driver built in adapter cable test. Cable Length: Displays the approximate length of the cable between the adapter and its link partner. If the reported cable length is different from the actual cable length, this could indicate a break in the cable. Accuracy can vary by up to 9 meters. The cable length will only be displayed when the adapter is connected to a network operating at 1000 Mbps.

Note: This test is available only if an Intel Proset chipset adapter is installed with Intel Pro set driver.

318 - Intel Cable Polarity Test

This is Intel Proset driver built in adapter cable test. Identifies the +/- properties of the send and receive twisted pair wires found in an Ethernet cable. If these properties are not correctly set up, the adapter will auto-correct and report the error.

Note: This test is available only if an Intel Proset chipset adapter is installed with Intel Pro set driver.

319 - Intel Local Receiver Test

This is Intel Proset driver built in adapter cable test. Identifies whether the cable connector attached to the adapter is capable of handling traffic. If the local status test fails, check the connector for breaks or miswiring. The adapter must be connected at 1000 Mbps for the local receiver status test to run.

Note: This test is available only if an Intel Proset chipset adapter is installed with Intel Pro set driver.

320 - Intel Remote Receiver Test

This is Intel Proset driver built in adapter cable test. The cable connector attached to the link partner passes or fails the set of operability tests. If the remote status test fails, check the connector for breaks or miswiring. The adapter must be connected at 1000 Mbps for the remote receiver status test to run.

Note: This test is available only if an Intel Proset chipset adapter is installed with Intel Pro set driver.

321 - Intel Cable Quality Test

This is Intel Proset driver built in adapter cable test. It tests network cable quality test.

Note: This test is available only if an Intel Proset chipset adapter is installed with Intel Pro set driver.

322 - Intel Ping Test

This is Intel Proset driver built in adapter connection test. It tests network adapter ping functionality.

Note: This test is available only if an Intel Proset chipset adapter is installed with Intel Pro set driver.

Error Codes

Error Code	Name
0x00/001	ARP Table failure.
0x01/001	Adaptor IP Address change failure.
0x02/3FF	Adaptor Info get failure.
0x03/3FF	Internal failure.
0x04/3FF	Socket Failure
0x05/3FF	Transfer Failure.
0x06/3FF	The IP Address can't be accessed on this device.
0x07/3FF	The Device is not connected to a network.
0x08/3FF	There was no reply from the ping.
0x09/001	Unable to find IP address for name.
0x0A/3FF	The IP address parameter has not been set.
0x0B/3FF	The IP address used is the local loop-back IP.
0x0C/001	Unable to initialise the required Wireless device.
0x0D/001	Unable to connect to the required Wireless access point.
0x0E/012	The wireless strength did not meet the threshold.
0x0F/001	General wireless error.
0x10/3FF	The wireless network is not connected.
0x11/3FF	The connection state did not change before the time-out.
0x12/3FF	Unable to get the state of the adaptor.
0x13/001	Unable to create the window.
0x14/3FF	This test is not supported on this device type.
0x15/3FF	The loop-back plug was not detected.
0x16/001	Could not start the test service.
0x17/008	Fatal Exception during testing.
0x18/3FF	Packet failed to Send or incorrect data.
0x19/3FF	Expected packet was not found or packet corruption has occurred.
0x1A/3FF	No packets were received and the sent packet has been lost.
0x1B/3FF	The network adapter is in a powered down state.
0x1C/3FF	Invalid data returned in a function call, Potential inconsistent Driver error
0x1D/3FF	WIFI is disabled in Windows

Error Code	Name
0x1E/3FF	WIFI is disabled in windows with hardware switch or button
0x1F/3FF	API is not supported in this OS version
0x20/3FF	WIFI enable failed, software enable failed.
0x21/3FF	Process security initialization failed.
0x22/3FF	CLSID Instance creation failed.
0x23/3FF	Unable to start the test, Intel Proset driver may not be installed.
0x24/3FF	Failed to security blanket for provider communication.
0x25/3FF	General WMI failure. HRESULT error code in Extra information.
0x26/3FF	Failed to set fast ethernet speed duplex.
0x27/3FF	Failed to read or write windows registry
0x28/3FF	Fast ethernet option of full duplex not supported by this card

Troubleshooting

Error Code(s)	Potential Reason
0x00/001 0x01/001 0x02/3FF 0x03/3FF 0x04/3FF 0x05/3FF 0x11/3FF 0x12/3FF 0x13/001 0x15/3FF 0x16/001 0x17/008 0x18/3FF 0x19/3FF 0x1A/3FF 0x1C/3FF 0x1F/3FF 0x20/3FF 0x26/3FF 0x27/3FF 0x28/3FF	Potential Windows® driver issues. If the drivers are not installed in the basic version, they may need to be installed. Network card memory fault, control register DMI/IRQ access. Potential issues with motherboard connection for separate card, especially for the PCI bus. If the issue is on the initial connection, the fault may be on the electrical connections on the pins of the card.
0x06/3FF 0x07/3FF 0x08/3FF 0x09/001 0x0A/3FF 0x0B/3FF 0x14/3FF 0x1D/3FF 0x1E/3FF 0x21/3FF 0x22/3FF 0x23/3FF 0x24/3FF 0x25/3FF	Potential Configuration or Test Parameter issue. If trying to ping, check that the target IP is on the same network as the adapter under test and is configured to respond to the ping. Note: The local loop-back IP address can't be used for test as it will not test the adaptor.
0x0C/001 0x0D/001 0x0E/012 0x0F/001 0x10/3FF 0x1B/3FF	A Wireless error has occurred. This could be caused by an issue with the wireless hardware, connection configuration or access point location. If your system has a wireless adapter power switch, make sure it is turned on.

260X - Hard Drives

Overview

This is a test group for fixed media disk drive (Hard Disks). Hard Disks consists of one or more rigid (hence "hard") rapidly rotating discs, coated with magnetic material and with magnetic heads arranged to write data to the surfaces and read it from them.

Tests are available to verify the ability to store data, report the SMART status and predict the probability of imminent failure.

The drive being tested should be mounted as a windows volume and have data on it to test, otherwise the test may stall.

Note: 1. Some tests use a drive's S.M.A.R.T. functionality to run. S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology), is a monitoring system for computer media to detect and report on various indicators of reliability. This functionality is not available on all devices. S.M.A.R.T documentation is available online for the tests and can be used for further information if required.

Note: 2. When comparing the test parameters duration and coverage for the actual testing time this will only be the same under one condition. A set parameter coverage of 100% or a set parameter duration which has sufficient time to test to the entire media. This is because of varying algorithms and delays moving to the next test location. Other parameters may be irrelevant due to hardware access times with this type of test. This is because with a duration setting, each physical read is performed sequentially. Whereas with the coverage parameter, the reading is distributed evenly across the hardware being tested. Therefore there maybe a delay due to moving to the next hardware location.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
309	Butterfly Seek						•	•	•
310	Random Read						•	•	•
311	Linear Read						•	•	•
312	S.M.A.R.T. Failure						•	•	•
313	S.M.A.R.T. Short						•	•	•
314	S.M.A.R.T. Conveyance						•	•	•
315	S.M.A.R.T. Extended						•	•	•
317	Idle Temperature						•	•	•
318	Instantaneous Temperature						•	•	•
319	S.M.A.R.T. Threshold						•	•	•
320	S.M.A.R.T. Custom						•	•	•
321	Drive Health						•	•	•
322	Intelligent Disk Scan						•	•	•

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
323	Drive Overall Health						•	•	•
324	ZeroData Disk Erase Test						•	•	•

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
309	1	Duration	0	0	604800	Time to run the test.
	2	Coverage	100	1	100	Percentage of hard disk to test.
	3	Maximum Errors	1	1	50	Continues to test until the maximum number of errors is reached. These are only errors directly associated with reading the drive.
	5	Maximum Retries	0	0	50	The maximum amount of retries per read. A warning message will be placed in the log on every retry that is performed.
	8	Windows Event Error Count	1000	0	1000	Windows® Event Error count between reads. 0 indicates the Windows® event error will not be read.
310	1	Duration	300	1	604800	Time to run the test.
	3	Maximum Errors	1	1	50	Continues to test until the maximum number of errors is reached. These are only errors directly associated with reading the drive.
	5	Maximum Retries	0	0	50	The maximum amount of retries per read. A warning message will be placed in the log on every retry that is performed.
	8	Windows Event Error Count	1000	0	10000	Windows® Event Error count between reads. 0 indicates the Windows® event error will not be read.

Test	Parameter	Name	Default	Min	Max	Note(s)
311	1	Duration	0	0	604800	Time to run the test.
	2	Coverage	100	1	100	Percentage of hard disk to test.
	3	Maximum Errors	1	1	50	Continues to test until the maximum number of errors is reached. These are only errors directly associated with reading the drive.
	5	Maximum Retries	0	0	50	The maximum amount of retries per read. A warning message will be placed in the log on every retry that is performed.
	8	Windows Event Error Count	1000	0	1000	Windows® Event Error count between reads. 0 indicates the Windows® event error will not be read.
312	9	S.M.A.R.T Error Log	FALSE	FALSE	TRUE	Enable SMART error log component of Imminent Failure test.
313	12	Self-test Duration Override	30	0	604800	S.M.A.R.T. Self-test minimum duration override. Set to 0 to use the estimated drive Self-test duration.
314	12	Self-test Duration Override	30	0	604800	S.M.A.R.T. Self-test minimum duration override. Set to 0 to use the estimated drive Self-test duration.
315	12	Self-test Duration Override	30	0	604800	S.M.A.R.T. Self-test minimum duration override. Set to 0 to use the estimated drive Self-test duration.
317	1	Duration	30	0	604800	Time to run the test.
	11	Maximum Temperature	40	0	200	Maximum Temperature. (Celsius)
	13	Pre-Test Delay	5	0	604800	Time to wait before starting the test.
318	11	Maximum Temperature	70	0	200	Maximum Temperature. (Celsius)

Test	Parameter	Name	Default	Min	Max	Note(s)
319	14	Attribute ID	0	0	256	The Attribute ID to test.
	17	Inclusive Mode	0	0	1	If set the test will fail if the attribute matches any thresholds.
320	14	Attribute ID	0	0	256	The Attribute ID to test.
	15	Upper Threshold	0	0	65535	If the attribute value is above this the test will fail. Ignored if 0.
	16	Lower Threshold	0	0	65535	If the attribute value is bellow this the test will fail. Ignored if 0.
	17	Inclusive Mode	0	0	1	If set the test will fail if the attribute matches any thresholds.
	18	Normalised Mode	1	0	1	If set the normalised attribute value will be used, otherwise the raw data will be used.
	22	48 Bit Trim	1	0	1	If set the S.M.A.R.T. attribute value will be trimmed and only bits 33 to 48 will be used. This will only work if Normalised mode is false.
321	20	Upper Threshold	100	0	604800	If set test will fail if the raw value is above the threshold.

Test	Parameter	Name	Default	Min	Max	Note(s)
322	3	Maximum Errors	1	1	50	Continues to test until the maximum number of errors is reached. These are only errors directly associated with reading the drive.
	5	Maximum Retries	0	0	50	The maximum amount of retries per read. A warning message will be placed in the log on every retry that is performed.
	8	Windows Event Error Count	1000	0	1000	Windows® Event Error count between reads. 0 indicates the Windows® event error will not be read.
	21	Intelligent Hard Disk Scan Speed	1	1	3	Specifies the speed setting for the intelligent scan test, (3 is fastest)
323	16	Threshold	75	1	100	If the attribute value is bellow this the test will fail. Ignored if 0.

Descriptions

309 - Butterfly Seek

Each Butterfly Seek test iteration consists of two seeks: one seek is lower than (below) the middle sector and one seek is higher than (above) the middle sector. After each iteration, the lower seek position increases by one sector increment and the higher seek position decreases by the same amount.

Test Time: Dependent on parameters

310 - Random Read

Each Random Seek test iteration is one seek to a pseudo random sector position. The purpose of this test is to test the head actuator mechanism, not the read head mechanism; so the actual sectors that are read, and even the accuracy of the data found, are not necessarily relevant. For this reason, it does not matter if the pseudo-random generator produces the same sector to check each time the test is run.

Test Time: Dependent on parameters.

311 - Linear Read

Each Read Verify test iteration is one seek and verify. Each iteration, the seek position increases by one sector increment.

Test Time: Dependent on parameters.

312 - S.M.A.R.T. Failure

This test checks the "SMART RETURN STATUS" of S.M.A.R.T. reporting, to ensure that the hard disk drive is in a reliable condition. A failure of this test indicates a relatively high probability that the drive will not be able to honour its specification and is about to fail.

Test Time: 1 to 5s

313 - S.M.A.R.T. Short

This test executes the sub-command "SMART Short self-test routine" within the "SMART EXECUTE OFF-LINE IMMEDIATE" command.

This test checks the electrical and mechanical performance as well as the read performance of the disk.

Electrical tests might include a test of buffer RAM, a read-write circuitry test, or a test of the read-write head elements.

Mechanical test includes seeking and servo on data tracks. Scans small parts of the drive's surface. Checks the list of Pending sectors that may have read errors.

Test Time: Usually under two minutes but is device dependent. There is a test time limit imposed by the manufacturer of the drive.

314 - S.M.A.R.T. Conveyance

This test executes the sub-command "SMART Conveyance self-test routine" within the "SMART EXECUTE OFF-LINE IMMEDIATE" command.

Intended as a quick test to identify damage incurred during transporting of the device from the drive manufacturer to the computer manufacturer.

Test Time: Several minutes but is device dependent.

315 - S.M.A.R.T. Extended

This test executes the sub-command "SMART Extended self-test routine" within the "SMART EXECUTE OFF-LINE IMMEDIATE" command.

A longer and more thorough version of the short self-test, scans the entire disk surface, with no time limit.

The test will progress from 0% to 70% using the manufacturer estimated run time for the drive under test and is obtained before the test executes. The Completion stage from 71% to 100% will take an unknown amount of time and is dependent on several factors within the drive. The test is still running during this stage and may take many hours to complete.

Test Time: Hundreds of minutes, this is device dependent. Approximately one gigabyte per minute for modern drives.

317 - Idle Temperature

This test checks the temperature reading of the Hard Drive against the minimum and maximum test parameters. This test is designed to be run prior to testing the Hard Drive and will take temperature readings over the set duration and will fail if any readings are outside of tolerances.

Note: Not all hard drives have temperature sensors. If no sensor can be found the test will return not available.

Test Time: Dependent on test parameter

318 - Instantaneous Temperature

This test checks the temperature reading of the Hard Drive against the minimum and maximum test parameters. This test is designed to be run after tests have been run and will return not available if no tests have been run within the configured time period.

Note: Not all hard drives have temperature sensors. If no sensor can be found the test will return not available.

Test Time: 1 Second

319 - S.M.A.R.T. Threshold

This test checks the set S.M.A.R.T. Attribute's value against its threshold.

Test Time: 1 Second

320 - S.M.A.R.T. Custom

This test checks the set S.M.A.R.T. Attribute's value. The upper and lower thresholds can be set to fixed values or configured to use the Attribute's threshold to test.

Note: If no thresholds are set the test can be used to confirm the support for the Attribute.

Test Time: 1 Second

321 - Drive Health

This test checks a list of S.M.A.R.T. Attribute's raw values, For perfect health raw values of all the attributes must be 0.

Note: Maximum threshold for only Reallocated sector count can be manually adjusted.

322 - Intelligent Disk Scan

The Intelligent Scan algorithm is a unique alternative to traditional Linear Read testing that provides a big time saving benefit when scanning large media for issues such as bad sectors, with little to no loss of test accuracy.

Test Time: Dependent on media size and data

323 - Drive Overall Health

This test checks the drive life estimate and will fail if it is below the threshold.

324 - ZeroData Disk Erase Test

This test confirms whether this drive was successfully erased by ZeroData.

Error Codes

Error Code	Name
0x00/3FF	The device failed to open.
0x02/00A	The drive is too small.
0x03/00A	Unable to read drive geometry.
0x04/3FF	Unable to set the test thread priority.
0x05/3FF	Failed to set file pointer.
0x06/001	Read failure.
0x07/006	Read size mismatch.
0x08/3FF	Drive does not support S.M.A.R.T.
0x0A/3FF	Unable to read the drive's capacity.
0x0B/015	S.M.A.R.T. Attributes indicate an error.
0x0C/001	Unable to communicate with device.
0x0E/3FF	Failure to obtain memory for testing.
0x0F/3FF	The S.M.A.R.T. Imminent Failure was detected.
0x10/001	The S.M.A.R.T. command failed and may not be supported.
0x11/3FF	The self-test routine was aborted.
0x12/3FF	The self-test routine was interrupted by a hard or soft power reset.
0x13/3FF	An unknown test error occurred while running the self-test routine.
0x14/3FF	The self-test has failed and the test element that failed is not known.
0x15/3FF	The electrical part of the self-test has failed.
0x16/3FF	The servo part of the self-test has failed.
0x17/3FF	The read part of the self-test has failed.
0x18/3FF	The device handling damage has been detected and the self-test has failed.
0x19/015	An unknown self-test result has been received.
0x1A/3FF	The S.M.A.R.T. Self-test is not supported.
0x1B/3FF	The S.M.A.R.T. Self-test did not complete before the time-out.
0x1C/3FF	The S.M.A.R.T. Error log part of the imminent test has failed.
0x1D/019	The temperature result was outside the tolerance.
0x1E/3FF	Temperature sensors are not found.
0x1F/098	The S.M.A.R.T. attribute could not be found.
0x20/098	The S.M.A.R.T. attribute was outside of allowed threshold.

Error Code	Name
0x21/3FF	Unable to open access to the drive.
0x22/3FF	Unable to get drive life.
0x23/080	The drive life is below the threshold.
0x24/3FF	Device is missing required signature.

Troubleshooting

Error Code(s)	Potential Reason
0x00/3FF 0x03/00A 0x04/3FF 0x05/3FF 0x06/001 0x07/006 0x0A/3FF 0x0C/001 0x0F/3FF 0x1C/3FF	The device may be faulty or another program may be limiting access to the device. Errors on the hard drive can be caused by power loss.
0x02/00A 0x08/3FF 0x0B/015 0x0E/3FF 0x10/001 0x1A/3FF 0x1C/3FF 0x1E/3FF 0x1F/098 0x21/3FF 0x22/3FF	The device does not appear to support this test. Check the test descriptions manual for the test requirements.
0x11/3FF 0x12/3FF 0x13/3FF 0x14/3FF 0x15/3FF 0x16/3FF 0x17/3FF 0x18/3FF 0x19/015 0x1B/3FF 0x24/3FF	The S.M.A.R.T. self-test may indicate a fault or imminent fault present with the drive. Errors such as aborted tests and power resets may be caused by other programs accessing S.M.A.R.T. functionality while the test is running or the device entering a power saving state. It is recommended that hard drive power down is disabled and no other programs are running for the duration of the test.
0x1D/019 0x20/098 0x23/080	The retrieved value from the sensor is outside the tolerance. Check the system information for your drive to ensure the correct parameter values are being used.

291X - Modem

Overview

A modem (modulator-demodulator) is a device that modulates an analogue carrier signal to encode digital information, and also demodulates such a carrier signal to decode the transmitted information. The philosophy is to produce a signal that can be transmitted easily and decoded to reproduce the original digital data.

Generally this device has been superseded by other communication technologies and is only required for historic purposes.

Note: Only one system modem is currently supported.

310X - USB

Overview

This is a group that checks a USB interface, it does not check devices attached to a USB interface. USB (Universal Serial Bus) is a specification for the cables, connectors and communications protocols for a serial connection between PCs and peripherals. This group is only testable if at least one Eurosoft USB plug is detected when the program initialises: it will not be testable if there are no USB devices or only non-Eurosoft USB devices connected to the USB ports.

Note: Eurosoft USB plugs should not be removed or inserted while diagnostics are running unless prompted by the test itself.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	Detected Devices		•				•	•	•
302	Connectivity	•	•		•		•	•	•
303	USB Quick		•		•		•	•	•
304	USB NRZI Max Bit Stuffing		•		•		•	•	•
305	USB NRZI Glitch Zero		•		•		•	•	•
306	USB NRZI Line Oscillation 1		•		•		•	•	•
307	USB NRZI Line Oscillation 2		•		•		•	•	•
308	USB NRZI Line Oscillation 3		•		•		•	•	•
309	USB NRZI Line Oscillation 4		•		•		•	•	•
310	USB Max Disparity		•		•		•	•	•
311	USB Random Data		•		•		•	•	•
312	USB Speed		•		•		•	•	•
313	Connection Verification	•	•		•		•	•	•

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
301	1	Number Of Devices	0	0	99	Number of Eurosoft USB plugs expected.
	5	Include Non-Eurosoft	FALSE	FALSE	TRUE	Include USB Media devices not provided by Eurosoft.
302	5	Include Non-Eurosoft	FALSE	FALSE	TRUE	Include USB Media devices not provided by Eurosoft.
303	1	Number Of Devices	0	0	99	Number of Eurosoft USB plugs expected.
	5	Include Non-Eurosoft	FALSE	FALSE	TRUE	Include USB Media devices not provided by Eurosoft.
304	1	Number Of Devices	0	0	99	Number of Eurosoft USB plugs expected.
305	1	Number Of Devices	0	0	99	Number of Eurosoft USB plugs expected.
306	1	Number Of Devices	0	0	99	Number of Eurosoft USB plugs expected.
307	1	Number Of Devices	0	0	99	Number of Eurosoft USB plugs expected.
308	1	Number Of Devices	0	0	99	Number of Eurosoft USB plugs expected.
309	1	Number Of Devices	0	0	99	Number of Eurosoft USB plugs expected.
310	1	Number Of Devices	0	0	99	Number of Eurosoft USB plugs expected.
311	1	Number Of Devices	0	0	99	Number of Eurosoft USB plugs expected.
	5	Include Non-Eurosoft	FALSE	FALSE	TRUE	Include USB Media devices not provided by Eurosoft.
312	1	Number Of Devices	0	0	99	Number of Eurosoft USB plugs expected.
	5	Include Non-Eurosoft	FALSE	FALSE	TRUE	Include USB Media devices not provided by Eurosoft.

Test	Parameter	Name	Default	Min	Max	Note(s)
313	4	Time-out	30	0	600	Time-out time for user interaction
	5	Include Non-Eurosoft	FALSE	FALSE	TRUE	Include USB Media devices not provided by Eurosoft.

Descriptions

301 - Detected Devices

The test counts the number of Eurosoft USB plugs plugged into USB ports. The user specifies how many devices to check for via a 'Number of Devices' parameter, the test passes if it detects a corresponding number of devices, else it fails. If the Number of Devices parameter is set to 0, then at least one Eurosoft USB device is required to pass the test.

302 - Connectivity

The test checks the connectivity of the Eurosoft USB plugs plugged into USB ports. The user will be prompted to remove and re-connect the Eurosoft USB device.

303 - USB Quick

Read and validate known test data from the Eurosoft USB Test Plug

304 - USB NRZI Max Bit Stuffing

Reads known test data from a Eurosoft Test Plug, this data causes hi-speed transfers to have minimum clocking transitions and NRZI to have to use maximum bit stuffing.

305 - USB NRZI Glitch Zero

Reads known test data from a Eurosoft Test Plug, this data causes a steady stream of data with the occasional Glitch to break the stream.

306 - USB NRZI Line Oscillation 1

Reads known test data from a Eurosoft Test Plug, this data causes NRZI to create and hold a square wave on the data bus.

307 - USB NRZI Line Oscillation 2

Reads known test data from a Eurosoft Test Plug, this data causes NRZI to create and hold a square wave on the data bus.

308 - USB NRZI Line Oscillation 3

Reads known test data from a Eurosoft Test Plug, this data causes NRZI to create and hold a square wave on the data bus.

309 - USB NRZI Line Oscillation 4

Reads known test data from a Eurosoft Test Plug, this data causes NRZI to create and hold a square wave on the data bus.

310 - USB Max Disparity

Reads known test data from a Eurosoft Test Plug, this data causes 8-bit -> 10-bit encoding maximum disparity. Data is split into 5 bit and 3 bit fields which is then encoded as 6 bit and 4 bit. The values that cause most disparity are held in a table and randomly combined.

311 - USB Random Data

Performs a random read of known Test Data from the Eurosoft Test Plug.

312 - USB Speed

Checks the port type (USB 1,2,3) and performs a data transfer test, the resultant transfer speed is then checked against acceptable transfer rates for the relevant USB port type.

313 - Connection Verification

The Connection Verification test is an interactive test that will display a count of all Eurosoft Test Plugs detected. The Test Plugs detected will also blink to help diagnose connection problems.

Error Codes

Error Code	Name
0x00/3FF	Unable to get control of USB devices.
0x01/002	An incorrect number of USB plugs were detected.
0x02/001	An error occurred with the interactive test window.
0x03/3FF	USB insertion detection timed out.
0x04/3FF	USB removal detection timed out.
0x05/3FF	No USB plugs were detected.
0x06/3FF	Building a tree of the USB physical devices failed.
0x07/005	Failed to set the position to read the media.
0x08/005	General Failure to read the media.
0x09/006	The buffer size read of the media does not match the buffer set to be read.
0x0A/3FF	The user has chosen to fail the test.
0x0B/3FF	An unknown error has occurred while running the test.
0x0C/3FF	The expected data does not match.
0x0D/3FF	The device speed was lower than expected.
0x0E/3FF	The USB plug is being used to run your application and cannot be used.

Troubleshooting

Error Code(s)	Potential Reason
0x00/3FF 0x0B/3FF	The test was unable to get control of the USB devices. This may be caused by another program accessing the USB devices or a driver issue with the USB controller.
0x01/002 0x05/3FF 0x07/005 0x08/005 0x09/006 0x0C/3FF 0x0D/3FF 0x0E/3FF	The number of devices found and specified with the test parameter did not match. This may be caused by an incorrect test parameter or a device failure. If the test parameter is 0, then no devices were found.
0x02/001	Error related to the creation of the interactive window. This is a general Windows operating system issue and indicates a problem with the operating system or programs running.
0x03/3FF 0x04/3FF 0x0A/3FF	Time-out in either the USB insert or remove interactive window. The USB socket maybe faulty or the user has not responded within the time limit.
0x06/3FF 0x0B/3FF	There was a failure in creating the USB physical devices build tree. This is a Windows operating system general issue or USB driver issue.

330X - Floppy Drives

Overview

This is a test group for removable media floppy drives. Floppy drives read from, and write to, a removable 'floppy disk' which is a disk of thin and flexible magnetic storage medium, sealed in a rectangular carrier. Though largely obsolete they are still used in legacy and specialist equipment.

Note: Floppy disks can degrade in performance after multiple uses: change the media regularly.

Note: To acquire device information on floppy drive media, the floppy disk must be present in the drive on initialisation.

Note: USB Floppy drives are not supported on Windows Vista® and above and should not be used.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	Butterfly Seek			•			•	•	•
302	Linear Read			•			•	•	•
303	Read Write			•			•	•	•
304	Media Change	•		•			•	•	•
305	Write Protect	•		•			•	•	•

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
301	1	Duration	0	0	604800	The duration of the test.
	2	Coverage	100	5	100	The coverage of the test.
302	1	Duration	0	0	604800	The duration of the test.
	2	Coverage	100	5	100	The coverage of the test.
303	1	Duration	0	0	604800	The duration of the test.
	2	Coverage	100	5	100	The coverage of the test.

Descriptions

301 - Butterfly Seek

The Butterfly Seek Test seeks back and forth, lower and higher, to sector positions centred on and around a "middle" sector. Each Butterfly Seek test iteration consists of two seeks: one seek lower than (below) the middle sector plus one seek higher than (above) the middle sector. After each iteration, the lower seek position increases by one sector increment and the higher seek position decreases by the same amount.

Test Time: 0.4 to 1.0 minutes (1.44MB floppy); 16.8 minutes (120MB floppy)

302 - Linear Read

The Linear Read Test seeks linearly and sequentially from the start to the end of the disk. Each Linear Seek test iteration is one seek. Each iteration, the seek position increases by one sector increment.

Test Time: 0.3 to 0.5 minutes (1.44MB floppy); 6.2 minutes (120MB floppy)

303 - Read Write

The Read Write Test seeks linearly and sequentially between start and stop points. At each seek position, it reads from the disk and then writes what was read back to the disk. Each Read Write test iteration is one seek. Each iteration, the seek position increases by one sector increment, a read is done from a number of sectors, and a write is done back to the same set of sectors. The Read Write test is always done with the seek position increasing each iteration.

Test Time: 1.4 to 2.2 minutes (1.44MB floppy); 31.4 minutes (120MB floppy)

304 - Media Change

The Media Change Test verifies that media change is correctly detected.

Test Time: 5 seconds; however, test times can vary considerably depending on user response.

305 - Write Protect

The Write Protect Test verifies that disk write protect is correctly detected.

Test Time: 5 seconds; however, test times can vary considerably depending on user response.

Error Codes

Error Code	Name
0x00/3FF	The initialisation failed for the test.
0x01/3FF	Floppy disk seek failure.
0x02/3FF	Floppy disk media open failure.
0x03/3FF	There is no media in the drive.
0x04/3FF	Media eject failure.
0x05/3FF	Incorrect media was detected.
0x06/3FF	The request timed out.
0x07/3FF	No media change detected.
0x08/3FF	The data write failed.
0x09/3FF	The data read failed.

Troubleshooting

Error Code(s)	Potential Reason
0x03/3FF 0x04/3FF 0x05/3FF 0x06/3FF 0x07/3FF	An error has occurred with the floppy disk media. Check to ensure the correct media is inserted when prompted.
0x00/3FF 0x01/3FF 0x02/3FF 0x08/3FF 0x09/3FF	An error has occurred with the floppy disk. This could be because of faulty media or a faulty device.

350X - Monitor

Overview

This is a test group for Monitors (LCD and CRT). This test group provides testing of the display monitor connected to the primary video adapter. All of the monitor tests use the Windows® API and do not require additional software libraries such as DirectX®.

Each of the monitor tests display a pattern used to check a particular feature of the monitor. All of the tests require the operator to interactively verify proper operation. The tests may be run using all screen resolutions and colour depths. Each test relies on user input, the actual duration is indeterminate. However, it should normally take no longer than 2-5 seconds for a user to determine whether the display is correct or not.

Before each test starts, a dialogue box is displayed indicating which test will run. It also contains text indicating how to start the test and how to indicate whether the test ran correctly. This box will be displayed once any key is pressed while the test pattern is shown. Once a key has been pressed a dialogue box appears asking whether the test was displayed correctly.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	Red Purity	•					•	•	•
302	Green Purity	•					•	•	•
303	Blue Purity	•					•	•	•
304	Mesh	•					•	•	•
305	Inverse Mesh	•					•	•	•
306	White MEME	•					•	•	•
307	Green MEME	•					•	•	•
308	Tonality	•					•	•	•
309	Grid	•					•	•	•
310	LCD Dead Pixel	•					•	•	•
311	Monitor Count						•	•	•
312	Internal Monitor Count						•	•	•
313	VGA Monitor Count						•	•	•
314	DVI Monitor Count						•	•	•
315	HDMI Monitor Count						•	•	•
316	DisplayPort/USB-C Monitor Count						•	•	•
317	Wireless Monitor Count						•	•	•
318	EDID Checksum						•	•	•

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
319	Monitor Brightness Test	•					•	•	•
320	Colourless Purity	•					•	•	•

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
301	1	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs.
302	1	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs.
303	1	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs.
304	1	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs.
305	1	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs.
306	1	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs.
307	1	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs.
308	1	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs.
309	1	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs.
310	1	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs.
	2	Screen Period	5	0	60	How long (in seconds) each pattern must be shown.

Test	Parameter	Name	Default	Min	Max	Note(s)
311	1	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs.
	3	Expected Monitors	0	0	127	Number of Monitors expected.
	4	Treat None As Failure	FALSE	FALSE	TRUE	If set to true, will fail if no monitors are found. If false the result will be not available.
	5	Prove Monitors	FALSE	FALSE	TRUE	User must prove that the monitors are detected. Each detected monitor will display a colour to be confirmed.
312	1	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs.
	3	Expected Monitors	0	0	127	Number of Monitors expected.
	4	Treat None As Failure	FALSE	FALSE	TRUE	If set to true, will fail if no monitors are found. If false the result will be not available.
	5	Prove Monitors	FALSE	FALSE	TRUE	User must prove that the monitors are detected. Each detected monitor will display a colour to be confirmed.
313	1	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs.
	3	Expected Monitors	0	0	127	Number of Monitors expected.
	4	Treat None As Failure	FALSE	FALSE	TRUE	If set to true, will fail if no monitors are found. If false the result will be not available.
	5	Prove Monitors	FALSE	FALSE	TRUE	User must prove that the monitors are detected. Each detected monitor will display a colour to be confirmed.

Test	Parameter	Name	Default	Min	Max	Note(s)
314	1	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs.
	3	Expected Monitors	0	0	127	Number of Monitors expected.
	4	Treat None As Failure	FALSE	FALSE	TRUE	If set to true, will fail if no monitors are found. If false the result will be not available.
	5	Prove Monitors	FALSE	FALSE	TRUE	User must prove that the monitors are detected. Each detected monitor will display a colour to be confirmed.
315	1	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs.
	3	Expected Monitors	0	0	127	Number of Monitors expected.
	4	Treat None As Failure	FALSE	FALSE	TRUE	If set to true, will fail if no monitors are found. If false the result will be not available.
	5	Prove Monitors	FALSE	FALSE	TRUE	User must prove that the monitors are detected. Each detected monitor will display a colour to be confirmed.
316	1	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs.
	3	Expected Monitors	0	0	127	Number of Monitors expected.
	4	Treat None As Failure	FALSE	FALSE	TRUE	If set to true, will fail if no monitors are found. If false the result will be not available.
	5	Prove Monitors	FALSE	FALSE	TRUE	User must prove that the monitors are detected. Each detected monitor will display a colour to be confirmed.

Test	Parameter	Name	Default	Min	Max	Note(s)
317	1	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs.
	3	Expected Monitors	0	0	127	Number of Monitors expected.
	4	Treat None As Failure	FALSE	FALSE	TRUE	If set to true, will fail if no monitors are found. If false the result will be not available.
	5	Prove Monitors	FALSE	FALSE	TRUE	User must prove that the monitors are detected. Each detected monitor will display a colour to be confirmed.
319	6	Time out	(VOID *)0	0	10	Time out for monitor brightness in seconds.
320	1	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs.

Descriptions

301 - Red Purity

The display is filled completely red. Any pixels not coloured red indicate a DAC problem, colour gun misalignment, or burned-out LCD panel element. This test is especially valuable for LCD panels.

Test Time: 3s

302 - Green Purity

The display is filled completely green. Any pixels not coloured green indicate a DAC problem, colour gun misalignment, or burned-out LCD panel element. This test is especially valuable for LCD panels.

Test Time: 3s

303 - Blue Purity

The display is filled completely blue. Any pixels not coloured blue indicate a DAC problem, colour gun misalignment, or burned-out LCD panel element. This test is especially valuable for LCD panels.

Test Time: 3s

304 - Mesh

The display is completely filled with an alternating one-zero mesh pattern. Any 'splotches' of black or white indicate a DAC problem, phosphor bleeding, or LCD panel elements that are stuck off or on.

Test Time: 3s

305 - Inverse Mesh

The inverse mesh display is identical to the mesh display except that the pattern is reversed (i.e. ones become zeros and vice versa). Again, 'splotches' of black or white indicate a DAC problem, phosphor bleeding, or LCD panel elements that are stuck off or on.

Test Time: 3s

306 - White MEME

The display is completely filled with a 'MEME' pattern to allow adjustments to CRT displays.

Test Time: 3s

307 - Green MEME

The display is completely filled with a 'MEME' pattern to allow other adjustments to CRT displays.

Test Time: 3s

308 - Tonality

The tonality display consists of shaded red, green, and blue bars in addition to a variety of vertical and horizontal lines and circles. This test pattern can be used to detect colour granularity problems (i.e. transitions from one colour to the next are not smooth). In addition, it can be used to adjust the 'pincushion' control on CRT displays to attain minimal vertical skewing.

Test Time: 3s

309 - Grid

The grid display consists of single pixel wide squares, which are 16 across by 12 high with a square white box in the middle. This test pattern is used to check geometry and colour gun alignment.

Test Time: 3s

310 - LCD Dead Pixel

Testing for dead pixels is performed by displaying a series of coloured screens. The display is filled completely with the colour. Any pixels not coloured indicate a DAC problem, colour gun misalignment, or burned-out LCD panel element. This test is especially valuable for LCD panels.

There are 4 colour steps in order to cover all pixels with all colours:

- Red

- Green

- Blue

- Black

Test Time: depends on parameter

311 - Monitor Count

The test counts the number of monitors. The user specifies how many devices to check for via a 'Number of Devices' parameter, the test passes if it detects a corresponding number of devices, else it fails. If the Number of Devices parameter is set to 0, then at least one monitor is required to pass the test.

312 - Internal Monitor Count

The test counts the number of monitors connected internally. The user specifies how many devices to check for via a 'Number of Devices' parameter, the test passes if it detects a corresponding number of devices, else it fails. If the Number of Devices parameter is set to 0, then at least one internal monitor is required to pass the test.

313 - VGA Monitor Count

The test counts the number of monitors connected via a VGA connection. The user specifies how many devices to check for via a 'Number of Devices' parameter, the test passes if it detects a corresponding number of devices, else it fails. If the Number of Devices parameter is set to 0, then at least one VGA connected monitor is required to pass the test.

314 - DVI Monitor Count

The test counts the number of monitors connected via a DVI connection. The user specifies how many devices to check for via a 'Number of Devices' parameter, the test passes if it detects a corresponding number of devices, else it fails. If the Number of Devices parameter is set to 0, then at least one DVI connected monitor is required to pass the test.

315 - HDMI Monitor Count

The test counts the number of monitors connected via a HDMI connection. The user specifies how many devices to check for via a 'Number of Devices' parameter, the test passes if it detects a corresponding number of devices, else it fails. If the Number of Devices parameter is set to 0, then at least one HDMI connected monitor is required to pass the test.

316 - DisplayPort/USB-C Monitor Count

The test counts the number of monitors connected via a DisplayPort connection. The user specifies how many devices to check for via a 'Number of Devices' parameter, the test passes if it detects a corresponding number of devices, else it fails. If the Number of Devices parameter is set to 0, then at least one DisplayPort connected monitor is required to pass the test.

317 - Wireless Monitor Count

The test counts the number of monitors connected via a Wireless connection. The user specifies how many devices to check for via a 'Number of Devices' parameter, the test passes if it detects a corresponding number of devices, else it fails. If the Number of Devices parameter is set to 0, then at least one Wireless connected monitor is required to pass the test.

318 - EDID Checksum

This test reads the Extended Display Identification Data from the monitor. This data is then checked and verified to ensure its checksum is correct.

319 - Monitor Brightness Test

This test changes brightness of monitor, It changes brightness on scale of 0 to 100% and back to zero.

320 - Colourless Purity

The display is filled completely white. Any pixels not coloured white indicate a DAC problem, colour gun misalignment, or burned-out LCD panel element. This test is especially valuable for LCD panels.

Test Time: 3s

Error Codes

Error Code	Name
0x00/3FF	The operator has chosen to fail the device based on the appearance of the test.
0x01/001	A function failed at the Windows® API level.
0x02/3FF	A resource failure occurred.
0x03/3FF	The operator has not responded in a reasonable time.
0x04/002	An incorrect number of monitors were detected.
0x05/3FF	No monitors were detected.
0x06/3FF	The test can not be run on this device. Count tests must be run on the system device and pixel tests must be run on monitor devices.
0x07/3FF	The EDID Checksum was incorrect.
0x08/3FF	The operator was unable to prove that the monitor is working.
0x09/3FF	Unable to find monitor source due to mirrored monitor or other error.
0x0A/3FF	Failed to set monitor brightness

Troubleshooting

Error Code(s)	Potential Reason
0x00/3FF 0x03/3FF 0x08/3FF	The operator has failed the test. Because this is an interactive only test, the operator should supply additional information to the reasons for the test failure.
0x01/001 0x02/3FF	The test failed due to a Windows® API failure. Check that your graphics drivers are up to date.
0x04/002 0x05/3FF 0x09/3FF	The expected number of monitors were not detected, or a failure occurred enumerating monitors. Check to ensure all monitors are connected and powered, and that video adapter drivers are up to date.
0x04/002 0x06/3FF	Test script or parameter error. Please check your test settings.
0x07/3FF 0x0A/3FF	There was an issue with the monitor hardware or interface. Check the manual or firmware.

440X - FireWire

Overview

This is a test group for IEEE1394 (FireWire) hardware on the system. FireWire is a serial bus interface standard for high-speed communications and isochronous real-time data transfer.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	IEEE1394 (FireWire)						•	•	•

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
301	1	Number Of Buses	0	0	127	Number of IEEE1394 buses (Controllers) to try to detect.

Descriptions

301 - IEEE1394 (FireWire)

The test counts the number of IEEE1394 buses that is required for the test to pass. The user specifies how many devices to check for via a 'Number of Buses' parameter: the test passes if it detects a corresponding number of devices, else it fails. If this parameter is set to 0, then the test will pass if at least one bus is detected.

Test Time: Less than 1 second.

Error Codes

Error Code	Name
0x00/3FF	No buses are available to perform the test.
0x01/080	Incorrect number of buses detected to perform the test.

Troubleshooting

Error Code(s)	Potential Reason
0x00/3FF	FireWire cabling if available incorrect. Windows® OS issues detecting device.
0x01/080	Check the test parameters for this test.

450X - Serial Ports

Overview

This is a group that tests Serial Ports. A serial port (typically designated COM) is a physical interface through which information transfers in or out one bit at a time according to the RS-232 standard. Tests are provided to verify the functionality of the serial ports as they transmit data, handle interrupts, and perform handshaking with external devices.

Note: Serial cards that have multiple serial ports must have the correct Windows® drivers loaded in order to be tested correctly.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	Configuration Registers						•	•	•
302	Quick Loop-back		•				•	•	•
303	Baud Rates		•				•	•	•
304	Sustained Loop-back		•				•	•	•
305	Priority Transmit		•				•	•	•
306	Endurance Test		•				•	•	•

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
302	5	Fail Without Loop-backs	FALSE	FALSE	TRUE	Fail if loop-back is missing, false will make the test result in not available
303	2	Minimum Baud Rate	300	300	921600	Minimum baud rate to test. If the entered value is not a preferred baud rate, the value is rounded down to the nearest preferred baud rate
	3	Maximum Baud Rate	115200	300	921600	Maximum baud rate to test. If the entered value is not a preferred baud rate, the value is rounded down to the nearest preferred baud rate
	5	Fail Without Loop-backs	FALSE	FALSE	TRUE	Fail if loop-back is missing, false will make the test result in not available
304	1	Test Duration	60	60	604800	Time to run the test for, seconds, maximum 1 week
	4	Baud Rate	115200	300	921600	Baud rate to test. If the entered value is not a preferred baud rate, the value is rounded down to the nearest preferred baud rate
	5	Fail Without Loop-backs	FALSE	FALSE	TRUE	Fail if loop-back is missing, false will make the test result in not available
305	5	Fail Without Loop-backs	FALSE	FALSE	TRUE	Fail if loop-back is missing, false will make the test result in not available

Test	Parameter	Name	Default	Min	Max	Note(s)
306	1	Test Duration	60	60	604800	Time to run the test for, seconds, maximum 1 week
	4	Baud Rate	115200	300	921600	Baud rate to test. If the entered value is not a preferred baud rate, the value is rounded down to the nearest preferred baud rate
	5	Fail Without Loop-backs	FALSE	FALSE	TRUE	Fail if loop-back is missing, false will make the test result in not available

Descriptions

301 - Configuration Registers

Tests the Configuration Settings of the serial port.

Test Time: 2s

302 - Quick Loop-back

This test performs an abbreviated loop-back test at a single baud rate, to test the port's ability to transmit and receive a short message.

Test Time: 3s

303 - Baud Rates

This test performs an abbreviated loop-back test at a variety of baud rates, specified by Min and Max values, to test the port's ability to transmit and receive a short message.

Test Time: up to 12s

304 - Sustained Loop-back

Tests the ability to withstand a transmission of sustained duration at a specified baud rate.

Test Time: dependant on parameter

305 - Priority Transmit

Tests serial port driver's priority transmit capability.

Test Time: 25s

306 - Endurance Test

Tests serial port throughput endurance at specified baud rate for a specified time.

Test Time: 25s

Error Codes

Error Code	Name
0x00/3FF	The minimum and maximum baud rates are not valid
0x01/3FF	Unable to write the port configuration
0x02/3FF	The serial port is a modem and cannot be tested
0x03/3FF	Unable to transmit all the data
0x04/3FF	Unable to receive all the data
0x05/3FF	The transmitted and received data does not match
0x06/3FF	Unable to read the port configuration
0x07/3FF	The set and read configurations do not match
0x08/3FF	Unable to transmit the Priority character
0x09/3FF	Unable to receive the Priority character
0x0A/3FF	Unable to find a serial port
0x0B/3FF	Unable to confirm the presence of the loop-back

Troubleshooting

Error Code(s)	Potential Reason
0x00/3FF	The Minimum and Maximum baud rates may be the wrong way round. The Minimum and Maximum baud rates may be the same.
0x01/3FF 0x02/3FF 0x03/3FF 0x04/3FF 0x05/3FF 0x06/3FF 0x07/3FF 0x08/3FF 0x09/3FF 0x0A/3FF 0x0B/3FF	The following are possible causes of errors: Faulty or wrong loop-back plug. Port to I/O interface (serial connector or interface chip) failure. Port does not support (all) status or flow control lines. Faulty port, device or serial chip (UART or chipset). Improper IRQ configuration. Test data rates exceed device capability.
0x08/3FF 0x09/3FF	The Priority Transmit mechanism may be inoperative. Retest with motherboard group repeat tests if necessary.

530X - Removable Media

Overview

This is a test group for disk drives with "removable media". This includes devices which plug directly into a port, such as USB flash memory "drives", as well as those that have media which are inserted into purpose-built peripheral devices.

Note: 1. Removable media MUST be present in the appropriate devices BEFORE running the test.

Note: 2. When testing PCMCIA slots, a Removable "media" PCMCIA card with suitable "media" is a good way to test this hardware.

Note: 3. When testing removable "media" using Windows® Pre-installation Environment, both card bus driver and device drivers may need to be added to the image.

Note: 4. When comparing the test parameters duration and coverage for the actual testing time this will only be the same under one condition. A set parameter coverage of 100% or a set parameter duration which has sufficient time to test to the entire media. This is because of varying algorithms and delays moving to the next test location. Other parameters may be irrelevant due to hardware access times with this type of test. This is because with a duration setting, each physical read is performed sequentially. Whereas with the coverage parameter, the reading is distributed evenly across the hardware being tested. Therefore there maybe a delay due to moving to the next hardware location.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	Linear Read			•			•	•	•
302	Random Read			•			•	•	•
303	Connectivity	•		•	•		•	•	
304	Media Bad Sector Test			•			•	•	•
305	Fake Detection Test			•			•	•	•

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
301	1	Duration	0	0	604800	Time to run the test for in seconds, maximum 1 week.
	2	Coverage	100	1	100	The percentage of the "media" to test.
	5	Windows Event Error Count	1000	0	10000	Windows® Event Error count between reads. 0 indicates the Windows® event error will not be read.
	6	Exclude Eurosoft Plugs	FALSE	FALSE	TRUE	Exclude Eurosoft plug devices
302	1	Duration	60	1	604800	Time to run the test for in seconds, maximum 1 week.
	5	Windows Event Error Count	1000	0	10000	Windows® Event Error count between reads. 0 indicates the Windows® event error will not be read.
	6	Exclude Eurosoft Plugs	FALSE	FALSE	TRUE	Exclude Eurosoft plug devices
303	4	Time-out	30	0	120	The time-out for waiting for the media removal or reinsertion.
304	1	Duration	0	0	604800	Time to run the test for in seconds, maximum 1 week.
	6	Exclude Eurosoft Plugs	(VOID *)TRUE	FALSE	TRUE	Exclude Eurosoft plug devices
	7	Maximum Errors	1	0	1000	Maximum bad sector errors.
305	6	Exclude Eurosoft Plugs	(VOID *)TRUE	FALSE	TRUE	Exclude Eurosoft plug devices
	8	Device Size	0	0	1024	Media device size in GB.

Descriptions

301 - Linear Read

Exercises a drive's read capability using linear (incrementally increasing) read addresses. Success or failure of each read is monitored.

302 - Random Read

Exercises a drive's read capability using pseudo-random read addresses. Success or failure of each read is monitored.

303 - Connectivity

This test checks the removable media detection functionality of the host device. This test will prompt the operator to remove and reinsert the media being tested.

Note: To test the media detection functionality, the media must be present when the group is initialised.

304 - Media Bad Sector Test

This tests checks removable media for bad sectors.

305 - Fake Detection Test

This tests detects fake devices which have different real capacity than the advertised capacity. User can input exact expected size (Gigabytes) of the device as parameter. A value of 0 means code will automatically calculate media size.

Error Codes

Error Code	Name
0x00/006	The buffer size read of the media does not match the buffer set to be read.
0x01/005	Failed to set the position to read the media.
0x02/005	General Failure to read the media.
0x03/00A	The media is too small or does not exist.
0x04/3FF	Unable to read the size of the media.
0x05/3FF	The media has no assigned drive letters.
0x06/001	The media insertion and removal events could not be configured.
0x07/001	A required window could not be created.
0x08/3FF	The media insertion or removal was not detected.
0x09/3FF	This media is currently running the application and diagnostics so cannot be safely used.
0x0A/3FF	The media can not be tested with this test or parameter setting.
0x0B/3FF	Failed to lock media for write operations.
0x0C/3FF	Maximum media error limit reached.
0x0D/3FF	Actual size of device is different than the device advertised size.
0x0E/3FF	Failed to write data to disk media.
0x0F/3FF	Data written to disk media does not match the data read back.

Troubleshooting

Error Code(s)	Potential Reason
0x00/006 0x01/005 0x02/005 0x04/3FF 0x06/001 0x07/001 0x0A/3FF 0x0B/3FF 0x0C/3FF 0x0E/3FF 0x0F/3FF	This failure could be caused by a fault in the Windows Operating System, Drive or Media being used. If possible, different media should be tested.
0x03/00A 0x0D/3FF	The size of the media is too small to be read. If the media is genuine this could be Media or Windows® OS related.
0x05/3FF	The media has no volumes with drive letters and can not be tested. Check that the media is formatted and visible on your computer.
0x08/3FF	The media insertion or removal was not detected. This could be because of a fault in the media or device for detecting the change in media. Alternatively this could be caused by the operator failing to insert or remove the media during the test.
0x09/3FF	The diagnostics are located and running from the removable media device under test. In order to test this device the diagnostics must be moved to another location.

541X - System

Overview

This group is used for testing the system as a whole. Stress testing refers to tests that determine the robustness of the system by testing up to the limits of normal operation. The Stress test puts a greater emphasis on robustness, availability, and error handling under a heavy load, than on what would be considered correct behaviour under normal circumstances.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	Stress			•			•	•	•
302	Sleep	•					•	•	
303	Hibernate	•					•	•	
304	Quick Blue Screen Dump						•	•	
305	Lid Detect	•			•		•	•	•
306	Convertible System						•	•	
307	Operator Response	•					•	•	•
308	Blue Screen Event						•	•	

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
301	1	Duration	300	60	604800	Duration to run the test for, in Seconds.
	2	Include Memory	TRUE	FALSE	TRUE	Include the memory in the Stress Test.
	3	Include Optical	FALSE	FALSE	TRUE	Include any optical drives in the test.
	4	Include Processor	TRUE	FALSE	TRUE	Include any processors in the test.
	5	Include Fixed Drives	TRUE	FALSE	TRUE	Include drives for testing.
	6	Include Video Graphics Test	TRUE	FALSE	TRUE	Include Video Graphics test.
	7	Optical Media Resistance	2	1	1000	Optical Error allowance.
	8	Maximum Failures	1	1	100000	Maximum number of non-catastrophic test failures before exiting.
	10	Maximum Video Card Temperature	92	1	200	Maximum GPU Temperature.
	11	Pseudo Random Seed	0x0	0x0	0xFFFFFFFF FFFFFFFF	Seed used for seeding random data and locations to use during test.
	13	Display Sensors	TRUE	FALSE	TRUE	Output the current sensor readings on the screen - only available during DirectX® test.
	14	Maximum CPU Temperature	92	1	200	Maximum Processor Temperature - only available during DirectX® video graphics part of the test.
	22	Maximum GPU Objects	1024	10	1000000	Maximum number of objects to create in the video graphics part of the test.
	23	Include Hard Drives	TRUE	FALSE	TRUE	Test Hard Drives if drive testing enabled.
	24	Include Solid State Drives	TRUE	FALSE	TRUE	Test Solid State Drives if drive testing enabled.

Test	Parameter	Name	Default	Min	Max	Note(s)
	25	Include NVMe Drives	TRUE	FALSE	TRUE	Test NVMe Drives if drive testing enabled.
	26	Include RAID Volumes	FALSE	FALSE	TRUE	Test RAID Volumes if drive testing enabled.
302	12	Force Sleep	FALSE	FALSE	TRUE	Force the sleep test to execute.
303	12	Force Sleep	FALSE	FALSE	TRUE	Force the sleep test to execute.
304	15	Previous Duration	30	1	36500	Duration, in days, to look back for blue screen of death dump files.
305	16	Time-out	30	0	600	Time-out in seconds, to respond to the test.
306	16	Time-out	60	0	600	Time-out in seconds, to respond to the test.
	17	Check mode change.	TRUE	FALSE	TRUE	Test the device's mode change.
307	16	Time-out	60	0	600	Time-out in seconds, to respond to the test.
	18	Treat as Failure	TRUE	FALSE	TRUE	Treat a Time-out or the red button response as a test failure instead of not available.
	19	Question	""	0	511	The question to display to the operator.
	20	Allow Text Response	TRUE	FALSE	TRUE	If set to True then the text response entry will be shown.
	21	Require Text Response	TRUE	FALSE	TRUE	If set to True then the text response entry is required.

Descriptions

301 - Stress

Main stress test. The pseudo random seed ensures test repeatability.

Note: Multiple components are tested and could fail with the stress test therefore Information on the error is always be the last component to fail.

Note: Any failures during initialisation are considered catastrophic and irrespective of maximum failures testing will cease.

Note: The system stress test only currently supports up to 26 fixed drives.

Note: If the system under test has a considerable amount of memory say 32GB or more this will take some to allocate ready for testing. Therefore in this case the test time should be modified as appropriate.

Note: If the CPU temperature is unavailable then irrelevant of the parameter setting the test will not fail.

Test Time: Dependent on test parameter.

302 - Sleep

This test checks the support and functionality of the system S3 (Sleep) power state. When in the S3 power state, the system will appear to be off and the power consumption level will be reduced. The lower the level of power consumption then the longer the system will take to return to the full power state.

Note: User interaction is required to change the power state back to full powered, by pressing either the sleep or power button on the system. Testing will stop until the system is changed back to this state.

Note: The sleep test parameter will need to be set to true in order to enable this test. This is because no interactive time-out can occur once the sleep state has been entered, and this could cause the test to wait indefinitely.

Test Time: Dependant on the re-power delay and the powered down devices attached to the system.

303 - Hibernate

This test checks the support and functionality of the system S4 (Hibernation) power state. When in the S3 power state, the system will appear to be off and the power consumption level will be set to the lowest level. The system saves the contents of memory to a hibernation file, preserving the state of the operating system, applications, and open documents.

Note: User interaction is required to change the power state back to full powered, by pressing either the sleep or power button on the system. Testing will stop until the system is changed back to this state.

Note: The sleep test parameter will need to be set to true in order to enable this test. This is because no interactive time-out can occur once the sleep state has been entered, and this could cause the test to wait indefinitely.

Test Time: Dependant on the re-power delay and the powered down devices attached to the system.

304 - Quick Blue Screen Dump

This test will check if there has been any Windows blue screen of death error in the time period specified.

A Blue screen of death error appears when Microsoft Windows encounters a critical error that it cannot recover from. Blue Screens of Death are generally caused by problems with the computer hardware or issues with its hardware drivers. It maybe possible to find the cause by analysing the crash dump created by windows.

It is advised to run the Blue Screen Event test in case this test fails.

Test Time: 1 Second.

305 - Lid Detect

This test will prompt the user to close the laptop screen lid and will pass once closed and opened again.

Test Time: Dependant on user response.

306 - Convertible System

This test will check for support for a convertible device such as a tablet with a laptop dock mode. If configured with the test parameter the test will prompt the user to change mode before returning to the original state.

Test Time: Dependant on user response.

307 - Operator Response

This test allows for flexible operator defined response to a provided question. Examples of questions that can be configured include asking if there is superficial damage on the machine, if all cables are provided or the order number for the machine.

Note: Text response is optional and if configured may appear as an extra result entry.

Test Time: Dependant on user response.

308 - Blue Screen Event

This test will check the Windows event log for Blue Screen of Death errors, and will gather extended information on these errors.

A Blue screen of death error appears when Microsoft Windows encounters a critical error that it cannot recover from. Blue Screens of Death are generally caused by problems with the computer hardware or issues with its hardware drivers. It maybe possible to find the cause by analysing the crash dump created by windows.

Test Time: 1 Second.

Error Codes

Error Code	Name
0x00/00C	The number of testing threads exceeded the maximum size of stress capabilities.
0x01/008	General error executing the test.
0x02/091	General error executing the test for the memory.
0x03/090	Fatal error executing the test for the Processor.
0x04/091	General error executing the test for the Processor.
0x05/001	Failed to open a device.
0x06/090	General error executing Optical tests.
0x07/091	Failed to read the Optical Device.
0x08/091	The transfer data amount is incorrect for the Optical device.
0x09/092	Failed to read the Optical or Fixed Media device.
0x0A/092	The transfer data size is incorrect for the Optical or Fixed Media device.
0x0B/092	General error with Video Graphics stress component.
0x0C/090	Error initialising Video Graphics dependencies.
0x0D/091	Failed to set the location of the Optical or Fixed Media access position.
0x0E/091	The Optical media is invalid.
0x0F/019	Exceeded the maximum temperature set for the Video Graphics.
0x10/01B	The frame rate is below the minimum frame rate of Video Graphics.
0x11/001	Failed to set the S3 or S4 power state.
0x12/3FF	The user did not observe the system enter the S3 or S4 power state.
0x13/3FF	The power state parameter has not being set to force the test.
0x14/090	General error executing the test for the Memory.
0x15/090	Fatal error executing the test for the Video Memory.
0x16/3FF	The power state can not be set as a dependency is not available.
0x17/091	General error with Video Graphics stress component.
0x18/091	The Fixed Media or Optical media to be tested is too small.
0x19/019	The Processor temperature exceeded the maximum temperature parameter.
0x1A/3FF	Unable to access the Windows registry.
0x1B/3FF	Unable to access the Windows Dump directory.
0x1C/000	A Blue Screen Of Death crash dump file was found.
0x1D/000	The test timed out before detecting user interaction.

Error Code	Name
0x1E/000	The user has chosen to fail the test.
0x1F/001	Unable to create test window.
0x20/091	Unable to access the system lid power response.
0x21/000	Nothing was selected to run.
0x22/000	A Blue Screen Of Death crash event was found.

Troubleshooting

Error Code(s)	Potential Reason
0x00/00C 0x01/008 0x03/090 0x05/001 0x0F/019 0x10/01B 0x14/090 0x15/090 0x17/091 0x19/019	There has been a general error while executing stress test. The error code will give more information on the device that has failed during the stress test. To diagnose this issue the stress test can be run with the failing component excluded, and specific tests for the failing component can be run from the relevant group.
0x02/091	The stress test has failed due to a memory fault. This could be due to a direct fault in the Memory or Motherboard, or could be due to a wider system error such as system overheat or overload of the System Bus. To diagnose this issue the stress test can be run with the Memory component excluded, or the Memory specific tests can be run from the relevant group.
0x04/091 0x0F/019 0x19/019	The stress test has failed due to a Processor fault. This could be due to a direct fault in the Processor, the cooling of the processor or any over-clocking configured. The Processor heat sink should be checked to ensure thermal compound and the heat sink itself has good contact to the Processor, any fans should be checked to ensure they are not clogged and operate smoothly. The BIOS should be checked to ensure no over-clocking is configured for the Processor. The maximum temperature parameter for the Processor should be reviewed and configured if appropriate. To diagnose the kind of Processor fault, the Processor specific tests can be run from the relevant group.
0x06/090 0x07/091 0x08/091 0x0D/091 0x0E/091 0x18/091	The stress test has failed due to a Optical fault. This could be due to a direct fault with the Optical drive, its media, the cables used to connect the Optical drive or a fault with the system power supply. The Optical media should be checked if read or size errors occur. To diagnose this issue the stress test can be run with the Optical component excluded, or the Optical specific tests can be run from the relevant group.
0x09/092 0x0A/092 0x0D/091 0x18/091	The stress test has failed due to a Fixed Media fault. This could be due to a direct fault with the drive, the cables used to connect the drive or a fault with the system power supply. To diagnose this issue the stress test can be run with the Optical component excluded, or the Optical specific tests can be run from the relevant group.
0x0B/092 0x0C/090	The stress test has failed due to a Video Graphics fault. This could be due to a direct fault with the Graphics card, Motherboard, Memory, Processor or the system power supply. The video graphics card drivers should be checked to ensure they are up to date. If the error is because of dependencies, ensure DirectX is available. To diagnose this issue the stress test can be run with the Video Graphics component excluded, or the Video Graphic specific tests can be run from the relevant group.
0x13/3FF	The sleep tests must be explicitly enabled through the force sleep parameter. Review the test parameters for this test.
0x11/001 0x12/3FF 0x16/3FF 0x20/091	The system was unable to enter the power state. This could be due to the Motherboard or Windows Operating system configuration. If the motherboard supports the power saving state then the BIOS configuration and Operating System settings should be checked.

Error Code(s)	Potential Reason
0x21/000	No components of stress test selected to run. The stress test parameters should be reviewed.
0x1C/000 0x22/000	A Blue Screen of Death dump file was found. Further details on the cause of the dump may be found in the file itself or in the Windows Event Log. If the Blue Screen of Death occurred during the testing of a component, this could indicate a fault with the component under test. Blue Screens of Death are generally caused by problems with the computer hardware or issues with its hardware drivers.
0x1A/3FF 0x1B/3FF	The information related to the location of the Blue Screen of Death dump files could not be accessed or used. This could be due to a Processor, Operating System or system drive fault.
0x1D/000 0x1E/000 0x1F/001	The lid detection was unable to detect a change in the lid state. This could be caused by user interaction, drivers or a hardware issue.

550X - Processor

Overview

This group is a processor test group that consists of tests that can be run on various instruction sets supported by the logical processors (i.e. hardware-implemented threads) of the computer system: Core Instruction Set Test, Floating Point Instruction Set, MMX Instruction Set and SSE Instruction Sets.

Each device identified by this group represents a physical processor package.

Note: All selected tests are executed on all cores. In the cases of processors with more than 64 cores, only the first 64 cores will be tested.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	Core Instruction Set						•	•	•
302	Floating Point Instruction Set						•	•	•
304	SSE Instruction Set						•	•	•
305	SSE2 Instruction Set						•	•	•
306	SSE3 Instruction Set						•	•	•
307	SSE 4.1 Instruction Set						•	•	•
310	Cache Functionality						•	•	•
311	SSE 4.2 Instruction Set						•	•	•
312	SSE 4A Instruction Set						•	•	•
313	Multi-core						•	•	•
314	Multi-processor						•	•	•
315	Core Priority						•	•	•
316	Thermal Stress						•	•	•
317	Power Stress						•	•	•
318	CPU Fan Test						•	•	•
319	CPU Temperature						•	•	•
320	AVX Instruction Set						•	•	•
321	SSSE3 Instruction Set						•	•	•
322	FMA3 Instruction Set						•	•	•
323	FMA4 Instruction Set						•	•	•
324	CLMUL Instruction Set						•	•	•

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
325	AES Instruction Set						•	•	•
326	BT Instruction Set						•	•	•

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
310	1	Duration	30	1	604800	The duration of the test in seconds.
313	7	Retry Cores	TRUE	TRUE	FALSE	Allow retries for setting the cores.
314	7	Retry Cores	TRUE	TRUE	FALSE	Allow retries for setting the cores.
316	1	Duration	30	5	604800	The duration of the test in seconds.
	2	Maximum Temperature	95	0	200	The maximum temperature the processor can reach during test.
317	1	Duration	30	5	604800	The duration of the test in seconds.
	3	Maximum Power	250	0	1000	The maximum power (in watts) the processor can draw during test.
318	6	Minimum CPU Fan Speed	100	0	5000	Minimum speed of the CPU fan in RPM.
319	5	Maximum Temperature Value	92	0	200	Maximum Temperature value. (Celsius)

Descriptions

301 - Core Instruction Set

This test performs certain CPU operations and checks the results against expected results. The CPU Test is made up of the following categories:

General:

Loads registers with patterns, performs operations that affect certain flags, and then checks to see that everything is operating correctly.

Arithmetic:

Performs various addition, subtraction, multiplication, and division operations and verifies against expected results.

Logic:

Tests shift and rotate instructions.

Test Time: 4s

302 - Floating Point Instruction Set

The first seven sub-tests apply maths operations to the Numeric Coprocessor to see if it is functioning properly. The operation is compared to the expected result. A failure indicates a variance to the expected result.

Test Time: 4s

304 - SSE Instruction Set

Finds faults with SSE instructions, including:

-Data conversion instructions

-Integer arithmetic instructions

-Integer comparison instructions

-Integer logic instructions

-Floating point arithmetic instructions (including square root approximation)

Floating point comparison instructions

-Floating point logic instructions

Test Time: 4s

305 - SSE2 Instruction Set

The SSE2 Instruction Set Test finds faults with SSE2 instructions, including:

-Data conversion instructions

-Integer arithmetic instructions

-Integer comparison instructions

-Integer logic instructions

-Floating point arithmetic instructions (including square root approximation)

-Floating point comparison instructions

-Floating point logic instructions

Test Time: 4s

306 - SSE3 Instruction Set

The SSE3 Instruction Set Test finds faults with SSE3 instructions, including:

- Add-Subtract-Packed-Double

-Add-Subtract-Packed-Single

-Horizontal-Add-Packed-Double

-Horizontal-Add-Packed-Single

-Horizontal-Subtract-Packed-Double

-Horizontal-Subtract-Packed-Single

-Misaligned integer vector load

-Move Double precision floating point numbers to XMM

-Pop floating point Register Stack

Test Time: 4s

307 - SSE 4.1 Instruction Set

This Test finds faults with SSE4 instructions.

Test Time: 4s

310 - Cache Functionality

The Cache test checks the processor data and instruction caches to ensure they function as designed and free from faults.

The processor data caches are checked by performing a series of operations designed to utilise and stress the caches with a series of data patterns to ensure functionality.

Test Time: Dependent on test parameter.

311 - SSE 4.2 Instruction Set

The SSE 4.2 Instruction Set Test finds faults with SSE 4.2 instructions. These instructions are string and text comparison and a cyclic redundancy check (CRC) test.

Test Time: 1s

312 - SSE 4A Instruction Set

The SSE 4.A Instruction Set Test finds faults with the SSE 4.A instructions. These instructions are for performing bit manipulation or streaming without using the processor caches.

Test Time: 1s

313 - Multi-core

The Multi-core test checks each core in the processor to ensure it is working as expected.

Test Time: 1s

314 - Multi-processor

The Multi-processor test checks each processor to ensure its functionality.

Test Time: 1s

315 - Core Priority

The core priority test finds faults with thread priority switching on each of the cores in the system.

Test Time: 1s

316 - Thermal Stress

This test checks the Thermal Power Dissipation of the processor. While running a processor stress algorithm, the temperature of the processor will be monitored to ensure heat is being dissipated correctly.

Note: Most processors have an internal temperature threshold that, if reached, will cause the system to shut down. If this occurs during testing then it should be treated as a test failure.

Test Time: Dependent on test parameter

317 - Power Stress

This test checks the power draw of the processor. While running a processor stress algorithm, the power draw of the processor will be monitored to ensure the processor is not over-drawing.

Test Time: Dependent on test parameter.

318 - CPU Fan Test

CPU Fan speed test. The test checks whether the CPU fan speed is greater than the minimum speed specified by the parameters.

Test Time: 1 Second

319 - CPU Temperature

CPU Temperature test. The test checks whether the CPU temperature resides between a minimum and a maximum value specified by the parameters.

Test Time: 1 Second

320 - AVX Instruction Set

The AVX Instruction Set Tests checks the Advanced Vector Extensions (Or Sandy Bridge New Extensions) instructions for the processor. These are collection of tests comparing simple ALU instruction results against complex AVX operations.

Test Time: 1s

321 - SSSE3 Instruction Set

The SSSE3 Instruction Set Tests checks the Supplemental Streaming SIMD Extensions 3 instructions for the processor. These instructions are for performing complex numeric operations.

Test Time: 1s

322 - FMA3 Instruction Set

The FMA3 Instruction Set Tests checks Fused Multiply-Add operations for the processor. These operations have 3 operands.

Test Time: 1s

323 - FMA4 Instruction Set

The FMA4 Instruction Set Tests checks Fused Multiply-Add operations for the processor. These operations have 4 operands.

Test Time: 1s

324 - CLMUL Instruction Set

The CLMUL Instruction Set Tests checks Carry-less Multiplication instructions for the processor. These instructions are for efficient multiplications in certain applications and operations.

Test Time: 1s

325 - AES Instruction Set

The AES Instruction Set Tests checks Advanced Encryption Standard instructions for the processor. These instructions are used for fast and secure encryption and decryption using this standard.

Test Time: 1s

326 - BT Instruction Set

The BT Instruction Set Tests checks Bit set Standard instructions for the processor. These instructions are used for bit manipulation on processor.

Test Time: 1s

Error Codes

Error Code	Name
0x00/3FF	The test for this processor cannot be executed because it is not supported.
0x01/009	Failed to set the core for this test.
0x02/3FF	Failed to initialise external library in order to perform testing.
0x03/3FF	Failed SSE 4.1 instructions test.
0x04/3FF	Failed SSE 3 instructions test.
0x05/3FF	Failed SSE 4.1 instructions test.
0x06/3FF	Failed MMX instructions test.
0x07/3FF	Failed Floating point instructions test.
0x08/3FF	Failed Core instructions test.
0x09/3FF	Failed SSE 4.2 instructions test.
0x0A/3FF	Failed SSE instructions test.
0x0B/3FF	Failed SSE 2 instructions test.
0x0C/3FF	Failed Core sign bit test.
0x0D/3FF	Failed Core carry bit test.
0x0E/3FF	Failed Core zero bit test.
0x0F/3FF	Failed Core parity bit test.
0x10/3FF	Failed Core RCX register test.
0x11/3FF	Failed Core RDX register test.
0x12/3FF	Failed Core R8 register test.
0x13/3FF	Failed Core R9 register test.
0x14/3FF	Failed Core shift left test.
0x15/3FF	Failed Core shift right test.
0x16/3FF	Failed Core addition test.
0x17/3FF	Failed Core subtraction test.
0x18/3FF	Failed Core multiplication test.
0x19/3FF	Failed Core division test.
0x1A/3FF	This instruction set has been deprecated for 64 bit platforms.
0x1B/3FF	The cache test has failed.
0x1C/080	The priority test has failed.
0x1D/080	The processor reading is outside of the tolerance.

Error Code	Name
0x1E/019	The temperature result was outside the tolerance.
0x1F/3FF	Unable to find sensor.
0x20/3FF	The result was outside the tolerance.
0x21/008	An unexpected exception occurred during the test.
0x22/008	Failed AVX instructions test.
0x23/008	Failed SSSE3 instructions test.
0x24/008	Failed FMA3 instructions test.
0x25/008	Failed FMA4 instructions test.
0x26/008	Failed CLMUL instructions test.
0x27/008	Failed AES instruction set
0x28/008	Failed BT instruction set

Troubleshooting

Error Code(s)	Potential Reason
0x00/3FF	The processor does not have the capabilities to perform the test. Please consult Eurosoft for more information if required.
0x01/009 0x03/3FF 0x04/3FF 0x05/3FF 0x06/3FF 0x07/3FF 0x08/3FF 0x09/3FF 0x0A/3FF 0x0B/3FF 0x0C/3FF 0x0D/3FF 0x0E/3FF 0x0F/3FF 0x10/3FF 0x11/3FF 0x12/3FF 0x13/3FF 0x14/3FF 0x15/3FF 0x16/3FF 0x17/3FF 0x18/3FF 0x19/3FF 0x1B/3FF 0x1C/080 0x21/008 0x22/008 0x23/008 0x24/008 0x25/008 0x26/008 0x27/008 0x28/008	Unable to execute or an unexpected result found during the test. This might be caused by a processor issue, issue with the Operation System or an issue related to the motherboard or memory.
0x02/3FF	Ensure all files are available for testing. Check your deliverable to ensure no files have been removed.
0x1A/3FF	These instruction sets are no longer supported natively on your processor. Newer instruction sets are now available.
0x1D/080 0x1E/019 0x1F/3FF 0x20/3FF	Sensor test issue. Either the sensor does not exist or the test result is outside the expected tolerance.

561X - Audio

Overview

This test group is designed to test the PC audio subsystem. The electrical characteristics of audio subsystems vary from manufacturer to manufacturer.

In the majority of cases the Quick tests and Audio Connection test will be sufficient to test the core functionality of your audio devices.

In most cases the other audio tests require that a loop-back cable be connected from the LINE OUT jack to either or both the LINE IN or MIC IN. Consequently, the actual speakers will not be connected during most of these tests.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
302	Audio Connection		•				•	•	•
303	Loop-back Count		•				•	•	
304	Advanced Quality		•				•	•	
305	Quick Microphone	•			•		•	•	
306	Quick System Sound	•			•		•	•	
307	Volume Change	•			•		•	•	
308	Playback	•			•		•	•	

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
302	3	Test Connection Count	0	0	100	Count of jacks expected.
	9	Check Loop-backs	TRUE	FALSE	TRUE	If set to 0 then the user will not be prompted to check loop-backs.
303	1	Tolerance Percentage	10	1	100	The tolerance for received signals
	4	Test Loop-back Count	1	0	10	Count of loop-back connections expected
	9	Check Loop-backs	TRUE	FALSE	TRUE	If set to 0 then the user will not be prompted to check loop-backs.
304	1	Tolerance Percentage	30	0	100	The tolerance for received signals
306	8	Explicit Headphone Testing	FALSE	FALSE	TRUE	Separate Headphone and Speaker testing mode
307	5	Lower Volume Target	25	1	99	Lower volume target for the volume test
	6	Upper Volume Target	75	1	100	Upper volume target for the volume test
308	7	Time-out	20	0	60	Interactive test time-out

Descriptions

302 - Audio Connection

The Audio connection test checks the system as a whole to confirm Jack sense functionality. To configure this test, initialise the group with no jacks plugged in and check the device information. The count of jacks given is the number of internal jacks connected.

If you wish to run interactively, set the parameter of 0 run the test and follow the instructions. To run automated, insert the count of jacks you wish to test and set the jack count parameter to equal the internal and additional jacks combined.

If the count of jacks detected does not equal the count of jacks expected, this test will fail.

Note: Not all sound devices support jack detection.

Test Time: 1s.

303 - Loop-back Count

The loop-back test checks the functionality of playback and recording on the system for ports with loop-backs connected. Once a loop-back is confirmed, it is recorded for use by the Advanced Quality test.

Note: A value of 0 for the Loop-back count parameter will check for at least one loop-back connection. If none are found using this parameter then the test will return not available.

Test Time: 10-60s.

304 - Advanced Quality

Each loop-back found by test 303 that supports 2 channels on the device is tested, to confirm the overall quality of the audio input and output.

Note: Test 303 must pass before this test is run.

Test Time: 10-60s.

305 - Quick Microphone

This interactive test will display a visual indicator of the level of sound detected from the microphone.

After at least 50% of the maximum sound levels is detected, the pass button will be enabled.

Test Time: Depending on user input.

Note: To ensure Windows® PE compatibility, the relevant audio drivers will need to be included in the Windows® PE package.

306 - Quick System Sound

The sound-play test is designed to test the functionality of the speakers or audio ports on the system. This interactive test contains several buttons to play a short sound through the Left, Right or Both speakers. The test window also includes a volume slider so that the sound range can be tested. Once all three sounds have been played, the green Pass button will become enabled.

Note: Windows® and any relevant audio connections will need to be configured prior to running each audio device or card.

Note: The sound playing is controlled by windows® and will play on all audio devices present. It is recommended to run the test more than once to check each of your audio devices in turn.

Note: It is recommended to remove all loop-backs connected to the system to ensure speakers connected are used. The Windows® volume should also be set to a reasonable level.

Note: To ensure Windows® PE compatibility, the relevant audio drivers will need to be included in the Windows® PE package.

Test Time: Dependent on user input.

307 - Volume Change

The volume change test will monitor the sound levels of the system as the user adjusts it up and down and will pass if the volume is changed correctly. This is primarily to test the volume buttons on tablet or laptop systems.

Test Time: Dependent on user input.

308 - Playback

The playback test will record and reply audio detected by any microphones or audio inputs into the system, replaying on the default sound device.

Test Time: Dependent on user input.

Error Codes

Error Code	Name
0x00/00E	Unable to output sound.
0x01/00E	Unable to record sound.
0x02/00E	Unable to open mixer.
0x03/00E	Received wave was outside tolerance.
0x04/00E	The Input and Output device cannot be tested.
0x05/00F	Unable to render sound.
0x06/00F	Unable to capture sound.
0x07/00F	The left channel signal was too small to test.
0x08/00F	The right channel signal was too small to test.
0x09/00F	The left channel signal was not within tolerances.
0x0A/00F	The right channel signal was not within tolerances.
0x0B/3FF	No Audio Jacks were detected.
0x0C/002	An incorrect count of jacks were detected.
0x0D/3FF	The operator chose to fail the test.
0x0E/3FF	The sound could not be played.
0x0F/3FF	The count of jacks was not set.
0x10/014	The count of jacks did not change.
0x11/002	The number of detected loop-backs did not match the Test Loop-back Count setting.
0x12/3FF	The Loop-back Count Test must pass before this test is run.
0x13/3FF	No stereo loop-backs were enumerated.
0x14/00F	Received wave was outside tolerance.
0x15/3FF	The tolerance parameter has not been set to a valid value.
0x16/001	Unable to create test window.
0x17/3FF	The Operator chose to fail the test.
0x18/3FF	Unable to set the volume.
0x19/001	Failed to open Microphone handle.
0x1A/3FF	The Microphone test is not supported on this system.
0x1B/3FF	The Operator did not respond.
0x1C/080	The volume did not reach the threshold.

Troubleshooting

Error Code(s)	Potential Reason
0x00/00E 0x01/00E 0x02/00E 0x04/00E 0x05/00F 0x06/00F 0x09/00F 0x0A/00F 0x0D/3FF 0x0E/3FF 0x14/00F 0x16/001 0x17/3FF 0x18/3FF 0x19/001 0x1A/3FF 0x1B/3FF 0x1C/080	Potential hardware issue. Check if drivers are installed and up to date for the sound card.
0x00/00E 0x01/00E 0x03/00E 0x04/00E 0x05/00F 0x06/00F 0x07/00F 0x08/00F 0x09/00F 0x0A/00F 0x0B/3FF 0x0C/002 0x11/002 0x13/3FF 0x14/00F	Potential hardware issue. Check that loop-back plugs are inserted and that the correct port is being tested.
0x03/00E 0x0C/002 0x0F/3FF 0x11/002 0x12/3FF 0x14/00F 0x15/3FF	The test parameters are invalid for this device. The operator needs to review the test parameters for this system.
0x10/014	Check that jack detect is supported. A result of NOT AVAILABLE can be caused by the operator failing to remove the Audio Jack or a genuine fault.

570X - Graphics Card

Overview

This is a group that tests graphics hardware (the 'graphics card' not the monitor). It incorporates two of our most successful memory test algorithms to test the on-board graphics memory and a new 3D render test to verify the GPU is functioning correctly. A linear memory test has also been included to provide memory testing capabilities when Microsoft Windows® DirectX9 is unavailable.

Note: 1. When comparing the test parameters duration and coverage for the actual testing time this will only be the same under one condition. A set parameter coverage of 100% or a set parameter duration which has sufficient time to test to the entire memory. This is because of varying algorithms and delays moving to the next test location. Other parameters may be irrelevant due to hardware access times with this type of test. This is because with a duration setting, each physical read is performed sequentially. Whereas with the coverage parameter, the reading is distributed evenly across the hardware being tested. Therefore there maybe a delay due to moving to the next hardware location.

Note: 2. If you using Windows® Pre-installation Environment then graphics card drivers must be installed. Alternatively, the system stress test in the system group should be considered for testing video memory.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	Linear Memory						•	•	•
302	Microtopology Memory						•	•	
303	Chaotic Addressing Memory						•	•	
304	Hardware Acceleration						•	•	
305	Graphics Card Temperature						•	•	•
306	Default Driver						•	•	
307	OpenCL Bandwidth						•	•	•
308	OpenCL Walking Zeros						•	•	•
309	OpenCL Walking Ones						•	•	•
310	OpenCL Moving Inversion						•	•	•
311	OpenCL Integer Logic						•	•	•
312	OpenCL Integer Logic (Local Memory)						•	•	•
313	OpenCL Random						•	•	•
314	OpenCL Modulo						•	•	•
315	CUDA Bandwidth						•	•	•
316	CUDA Walking Zeros						•	•	•
317	CUDA Walking Ones						•	•	•

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
318	CUDA Moving Inversion						•	•	•
319	CUDA Integer Logic						•	•	•
320	CUDA Integer Logic (Local Memory)						•	•	•
321	CUDA Random						•	•	•
322	CUDA Modulo						•	•	•
323	CUDA Compute						•	•	•
324	CUDA Stress						•	•	•
325	GPU driver crash test						•	•	•
326	Graphic Engine Particle						•	•	
327	Graphic Engine Ray Tracing						•	•	
328	Graphic Engine Physics						•	•	

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
301	1	Duration	0	0	604800	Maximum Testing time in seconds, this can be up to 7 days.
302	1	Duration	60	1	604800	Maximum Testing time in seconds, this can be up to 7 days.
303	1	Duration	60	1	604800	Maximum Testing time in seconds, this can be up to 7 days.
304	1	Duration	60	1	604800	Maximum Testing time in seconds, this can be up to 7 days.
	4	Adapter Index	0	0	255	Display adaptor index for multiple monitors. Use 0 for the primary display.
305	3	Maximum Temperature	90	0	200	Maximum test range value in Celsius.
306	5	Test All Adapters	FALSE	0	TRUE	If all display adaptors should be tested.
307	6	Duration	300	0	604800	Testing time in seconds, this can be up to 7 days. The current iteration must complete for the test to end.
	9	Error Count Limit	1	1	10000	Maximum errors before test failure.
	14	Graphics Card Resource Only	TRUE	FALSE	TRUE	Test only graphics card resources. If FALSE, shared processing with the processor may occur.

Test	Parameter	Name	Default	Min	Max	Note(s)
308	6	Duration	300	0	604800	Testing time in seconds, this can be up to 7 days. The current iteration must complete for the test to end.
	9	Error Count Limit	1	1	10000	Maximum errors before test failure.
	14	Graphics Card Resource Only	TRUE	FALSE	TRUE	Test only graphics card resources. If FALSE, shared processing with the processor may occur.
309	6	Duration	300	0	604800	Testing time in seconds, this can be up to 7 days. The current iteration must complete for the test to end.
	9	Error Count Limit	1	1	10000	Maximum errors before test failure.
	14	Graphics Card Resource Only	TRUE	FALSE	TRUE	Test only graphics card resources. If FALSE, shared processing with the processor may occur.
310	6	Duration	300	0	604800	Testing time in seconds, this can be up to 7 days. The current iteration must complete for the test to end.
	9	Error Count Limit	1	1	10000	Maximum errors before test failure.
	14	Graphics Card Resource Only	TRUE	FALSE	TRUE	Test only graphics card resources. If FALSE, shared processing with the processor may occur.
311	6	Duration	300	0	604800	Testing time in seconds, this can be up to 7 days. The current iteration must complete for the test to end.
	9	Error Count Limit	1	1	10000	Maximum errors before test failure.
	14	Graphics Card Resource Only	TRUE	FALSE	TRUE	Test only graphics card resources. If FALSE, shared processing with the processor may occur.

Test	Parameter	Name	Default	Min	Max	Note(s)
312	6	Duration	300	0	604800	Testing time in seconds, this can be up to 7 days. The current iteration must complete for the test to end.
	9	Error Count Limit	1	1	10000	Maximum errors before test failure.
	14	Graphics Card Resource Only	TRUE	FALSE	TRUE	Test only graphics card resources. If FALSE, shared processing with the processor may occur.
313	6	Duration	300	0	604800	Testing time in seconds, this can be up to 7 days. The current iteration must complete for the test to end.
	9	Error Count Limit	1	1	10000	Maximum errors before test failure.
	14	Graphics Card Resource Only	TRUE	FALSE	TRUE	Test only graphics card resources. If FALSE, shared processing with the processor may occur.
314	6	Duration	300	0	604800	Testing time in seconds, this can be up to 7 days. The current iteration must complete for the test to end.
	9	Error Count Limit	1	1	10000	Maximum errors before test failure.
	14	Graphics Card Resource Only	TRUE	FALSE	TRUE	Test only graphics card resources. If FALSE, shared processing with the processor may occur.
315	6	Duration	300	0	604800	Testing time in seconds, this can be up to 7 days. The current iteration must complete for the test to end.
	9	Error Count Limit	1	1	10000	Maximum errors before test failure.

Test	Parameter	Name	Default	Min	Max	Note(s)
316	6	Duration	300	0	604800	Testing time in seconds, this can be up to 7 days. The current iteration must complete for the test to end.
	9	Error Count Limit	1	1	10000	Maximum errors before test failure.
317	6	Duration	300	0	604800	Testing time in seconds, this can be up to 7 days. The current iteration must complete for the test to end.
	9	Error Count Limit	1	1	10000	Maximum errors before test failure.
318	6	Duration	300	0	604800	Testing time in seconds, this can be up to 7 days. The current iteration must complete for the test to end.
	9	Error Count Limit	1	1	10000	Maximum errors before test failure.
319	6	Duration	300	0	604800	Testing time in seconds, this can be up to 7 days. The current iteration must complete for the test to end.
	9	Error Count Limit	1	1	10000	Maximum errors before test failure.
320	6	Duration	300	0	604800	Testing time in seconds, this can be up to 7 days. The current iteration must complete for the test to end.
	9	Error Count Limit	1	1	10000	Maximum errors before test failure.
321	6	Duration	300	0	604800	Testing time in seconds, this can be up to 7 days. The current iteration must complete for the test to end.
	9	Error Count Limit	1	1	10000	Maximum errors before test failure.

Test	Parameter	Name	Default	Min	Max	Note(s)
322	6	Duration	300	0	604800	Testing time in seconds, this can be up to 7 days. The current iteration must complete for the test to end.
	9	Error Count Limit	1	1	10000	Maximum errors before test failure.
323	10	Minimum Version Major	1	1	10	Minimum version of Compute that should be supported.
	11	Minimum Version Minor	0	0	10	Minimum version of Compute that should be supported.
324	6	Duration	300	120	604800	Testing time in seconds, this can be up to 7 days. The current iteration must complete for the test to end.
	12	Max Temperature	90	0	200	Maximum Temperature in Celsius the display adapter may reach.
	13	Logical Validation Coverage	1	0	100	Percentage of mathematical operations to validate.
325	15	Days in past to check crash	30	1	90	How many days in past to check GPU crash history.
326	1	Duration	300	120	604800	Maximum Testing time in seconds, this can be up to 7 days.
327	1	Duration	300	120	604800	Maximum Testing time in seconds, this can be up to 7 days.
328	1	Duration	300	120	604800	Maximum Testing time in seconds, this can be up to 7 days.

Descriptions

301 - Linear Memory

The Linear Memory Test performs a basic memory test on all accessible video memory. The test works by filling the screen with a colour, then individually checking that each pixel is displaying this colour.

Note: This test cannot detect 'dead pixels' in an LCD display; only defective video memory.

Note: User interaction during the Linear Memory test should be avoided; as such interaction may cause the Operating System to update the screen and may result in erroneous results for this test.

Note: This test make take longer than a configured duration due to the initialisation of the video memory buffers. The duration parameter must 0 or above 60 seconds.

Note: In Windows PE, only a duration of 0 is supported.

302 - Microtopology Memory

This test uses a complex mathematical addressing method designed to stimulate physically adjacent bit cells, effective even where the precise physical arrangement of the device is unknown. This test is also very sensitive to issues of noise and timing in the memory system design as a whole.

Test Time: Dependant on the duration test setting.

303 - Chaotic Addressing Memory

Memory is addressed in non-repeating pseudo-random sequences that are designed not to resolve to the same cells twice. The addressing and test data sequences are subsequently regenerated to ensure that data was not misdirected due to an addressing error or subject to a coupled fault.

Test Time: Dependant on the duration test setting.

304 - Hardware Acceleration

The Hardware Acceleration Test renders randomly generated 3-dimensional scenes with a video card's hardware acceleration and compares the resulting image with an emulated software rendering. If the difference between the hardware and software rendered frames exceeds a reasonable threshold (i.e. more than a variation in anti-aliasing algorithms), the test fails. If DirectX hardware is not supported then the rendering part of the algorithm only is performed.

305 - Graphics Card Temperature

Graphics Card Temperature. The test checks the temperature of the graphics card to reside between a minimum and a maximum value specified by the parameters.

Test Time: 1 Second

306 - Default Driver

The Default Driver test checks the drivers used for the display adapter and will fail if the default Microsoft Basic Display Adapter drivers are being used.

Test Time: 1 Second

307 - OpenCL Bandwidth

The OpenCL Bandwidth test checks the stability of the display adapter when transferring data to and from the adapter memory.

Note: This test make take longer than a configured duration due to testing in blocks.

Test Time: Dependant on the duration test setting.

308 - OpenCL Walking Zeros

The OpenCL Walking Zero test checks the adapter memory by walking a 0 bit through a block of 1's.

Note: This test make take longer than a configured duration due to testing in blocks.

Test Time: Dependant on the duration test setting.

309 - OpenCL Walking Ones

The OpenCL Walking One test checks the adapter memory by walking a 1 bit through a block of 0's.

Note: This test make take longer than a configured duration due to testing in blocks.

Test Time: Dependant on the duration test setting.

310 - OpenCL Moving Inversion

The OpenCL Moving Inversion test checks the adapter memory by inverting a block data pattern through memory.

Note: This test make take longer than a configured duration due to testing in blocks.

Test Time: Dependant on the duration test setting.

311 - OpenCL Integer Logic

The OpenCL Logical Iteration test checks the adapter memory by performing logical operations on blocks of the memory.

Note: This test make take longer than a configured duration due to testing in blocks.

Test Time: Dependant on the duration test setting.

312 - OpenCL Integer Logic (Local Memory)

The OpenCL Local Logical Iteration test checks the shared adapter memory by performing logical operations on blocks of the memory.

Note: This test make take longer than a configured duration due to testing in blocks.

Test Time: Dependant on the duration test setting.

313 - OpenCL Random

The OpenCL Random test checks the adapter memory by writing random data into blocks of memory.

Note: This test make take longer than a configured duration due to testing in blocks.

Test Time: Dependant on the duration test setting.

314 - OpenCL Modulo

The OpenCL Modulo test checks the adapter memory by writing sequential data to memory based on the modulus of the previous iteration.

Note: This test make take longer than a configured duration due to testing in blocks.

Test Time: Dependant on the duration test setting.

315 - CUDA Bandwidth

The CUDA Bandwidth test checks the stability of the display adapter when moving data to and from the adapter memory.

Note: This test make take longer than a configured duration due to testing in blocks.

Note: This test is only supported on Nvidia adapters with at least driver version 367.4.

Test Time: Dependant on the duration test setting.

316 - CUDA Walking Zeros

The CUDA Walking Zero test checks the adapter memory by walking a 0 bit through a block of 1's.

Note: This test make take longer than a configured duration due to testing in blocks.

Note: This test is only supported on Nvidia adapters with at least driver version 367.4.

Test Time: Dependant on the duration test setting.

317 - CUDA Walking Ones

The CUDA Walking One test checks the adapter memory by walking a 1 bit through a block of 0's.

Note: This test make take longer than a configured duration due to testing in blocks.

Note: This test is only supported on Nvidia adapters with at least driver version 367.4.

Test Time: Dependant on the duration test setting.

318 - CUDA Moving Inversion

The CUDA Moving Inversion test checks the adapter memory by inverting a block data pattern through memory.

Note: This test make take longer than a configured duration due to testing in blocks.

Note: This test is only supported on Nvidia adapters with at least driver version 367.4.

Test Time: Dependant on the duration test setting.

319 - CUDA Integer Logic

Note: This test make take longer than a configured duration due to testing in blocks.

Note: This test is only supported on Nvidia adapters with at least driver version 367.4.

Test Time: Dependant on the duration test setting.

320 - CUDA Integer Logic (Local Memory)

The CUDA Local Logical Iteration test checks the shared adapter memory by performing logical operations on blocks of the memory.

Note: This test make take longer than a configured duration due to testing in blocks.

Note: This test is only supported on Nvidia adapters with at least driver version 367.4.

Test Time: Dependant on the duration test setting.

321 - CUDA Random

The CUDA Random test checks the adapter memory by writing random data into blocks of memory.

Note: This test make take longer than a configured duration due to testing in blocks.

Note: This test is only supported on Nvidia adapters with at least driver version 367.4.

Test Time: Dependant on the duration test setting.

322 - CUDA Modulo

The CUDA Modulo test checks the adapter memory by writing data to memory based on the modulus of the previous iteration.

Note: This test make take longer than a configured duration due to testing in blocks.

Note: This test is only supported on Nvidia adapters with at least driver version 367.4.

Test Time: Dependant on the duration test setting.

323 - CUDA Compute

The CUDA Compute test checks the adapter compute version against the test parameter set. If the adapter compute version is equal to or greater than the test parameter, a series of operations are run to prove the support for the version reported.

Note: This test is only supported on Nvidia adapters with at least driver version 367.4.

Test Time: Less than 30 seconds.

324 - CUDA Stress

The CUDA Stress test runs complex mathematical operations with the processor and display adapter to test the adapter stability when under load. The temperature is monitored and if the set limit is exceeded the test will fail.

Note: This test is only supported on Nvidia adapters with at least driver version 367.4.

Note: Higher settings for the logical coverage will result in more processor time dedicated to validation that can result in less optimal adapter stress and temperature. Settings over 0 may add a delay to the test initialisation time as the test data is prepared.

Test Time: Dependant on the duration test setting.

325 - GPU driver crash test

This test checks event log for any crash information logged in specified days in past and reports GPU driver crashes.

326 - Graphic Engine Particle

The GPU Engine Particle test checks that the graphics card is able to render particles with DirectX.

Note: This test makes use of the Wicked Engine for graphics rendering.

327 - Graphic Engine Ray Tracing

The GPU Engine Ray Tracing test checks that the graphics card is able to render with Ray Tracing with DirectX.

Note: This test makes use of the Wicked Engine for graphics rendering.

328 - Graphic Engine Physics

The GPU Engine Physics test checks that the graphics card is able to render with Physics calculations with DirectX.

Note: This test makes use of the Wicked Engine for graphics rendering.

Error Codes

Error Code	Name
0x00/001	Unable to create window class.
0x01/001	Unable to create window.
0x02/001	Unable to set window parameters.
0x03/3FF	Unable to update window.
0x04/001	Unable to get control of window.
0x05/3FF	Unable to set draw mode.
0x06/001	Unable to set window size.
0x07/007	Incorrect pixel detected.
0x08/3FF	DirectX9 is not supported.
0x09/3FF	Could not find Ship Model Resource.
0x0A/001	Failed to initialise Z-Buffer.
0x0B/001	Failed to initialise graphics.
0x0C/3FF	Failed to initialise lights.
0x0D/3FF	Failed to initialise font.
0x0E/3FF	Failed to validate device.
0x0F/3FF	Dx9 software rendering unavailable.
0x10/3FF	The software and hardware rendered frames do not match.
0x11/3FF	Unable to allocate texture memory.
0x12/008	General Error allocating texture memory.
0x13/3FF	The memory set and compared did not match.
0x14/008	General error testing memory.
0x15/001	Could not lock the texture memory.
0x16/001	Could not unlock the texture memory.
0x17/3FF	Error while rendering.
0x18/3FF	Unknown format of DX9.
0x19/019	The temperature result was outside the tolerance.
0x1A/3FF	Unable to find sensor.
0x1B/01C	The driver information was not found or is the Microsoft Basic Display Adapter driver.
0x1C/01C	The graphics card error count exceeded the test parameter set.
0x1D/3FF	Error occurred validating Compute functionality.

Error Code	Name
0x1E/3FF	The supported Compute version is too low.
0x1F/3FF	The graphics card does not support the minimum CUDA version. The minimum supported Nvidia driver version is 367.4.
0x20/3FF	The graphics card does not support the test.
0x21/3FF	Unknown error occurred during testing.
0x22/3FF	Unknown error occurred during initialisation of the test.
0x23/3FF	Unable to allocate adapter resources.
0x24/3FF	Unable to load memory test prerequisites.
0x25/3FF	Unable to load nvidia-smi.
0x26/3FF	Mathematical or logical errors occurred during the stress testing.
0x27/3FF	The display adapter does not have enough shared memory to perform the test.
0x28/3FF	Driver or OpenCL error.
0x29/3FF	WMI initialization error.
0x30/3FF	Display device is in error state, it is disabled by the operating system.

Troubleshooting

Error Code(s)	Potential Reason
0x00/001 0x01/001 0x02/001 0x03/3FF 0x04/001 0x05/3FF 0x06/001 0x18/3FF 0x24/3FF	The test is unable to run because of a display window failure. This could be caused by missing, out of date or incorrect display drivers or another application taking control of the window.
0x08/3FF 0x0A/001 0x0B/001 0x0C/3FF 0x0D/3FF 0x0E/3FF 0x0F/3FF 0x12/008 0x14/008 0x15/001 0x16/001 0x18/3FF	The test has failed due to a DX9 error. This could be caused by a missing or unsupported DX9 installation or a genuine fault with your device such as rendering or memory issues.
0x07/007 0x09/3FF 0x10/3FF 0x11/3FF 0x13/3FF 0x17/3FF 0x18/3FF 0x1C/01C 0x1D/3FF 0x1E/3FF 0x21/3FF 0x26/3FF	A failure has been detected with your device. This could be a genuine fault with your device or missing or incorrect device drivers. Note: For video cards with less than 32MB video memory the test may fail.
0x19/019 0x1A/3FF	Sensor test failed. Either the sensor does not exist or the test value is outside the tolerance

Error Code(s)	Potential Reason
0x08/3FF 0x0B/001 0x0F/3FF 0x1B/01C 0x1F/3FF 0x20/3FF 0x21/3FF 0x22/3FF 0x24/3FF 0x25/3FF 0x27/3FF 0x28/3FF 0x29/3FF 0x30/3FF	Display adapter driver error, or the default Microsoft Basic Display Adapter is being used. Installing display adapter drivers should fix this. If the OpenCL tests are failing in Windows PE, place your driver's OpenCL DLLs into the diagnostic Xtra GPU directory or contact Eurosoft for assistance. If unable to find nvidia-smi, place your driver's nvidia-smi application into the diagnostic Xtra GPU directory or contact Eurosoft for assistance.
0x1C/01C 0x1E/3FF 0x23/3FF	The test failed or could not run due to the parameters of the test. If this is not a genuine failure, check the parameters configured.

590X - Video Capture

Overview

This is a test group for capture devices. Capture devices receive data from items such as video cameras, DVD players or television antennae. The group consists of ten tests that can be run on a device. Included with the group are five tests that check basic functionality, the Capture Driver tests.

If a device is found, it is scanned for the different types of input it offers. If the inputs detected are of an unrecognised type then the Capture Driver Test can then be run to ensure basic functionality.

If the device only offers one video input, only the Capture Test is made available. If the device offers different inputs, the Group offers a test for each of the available inputs.

These tests facilitate performing a high-quality check of the device and its configuration by interactively checking the actual data received.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	Capture Driver						•	•	•
302	Composite Capture Driver						•	•	
303	S-Video Capture Driver						•	•	
304	TV Capture Driver						•	•	
305	RGB Capture Driver						•	•	
316	Capture	•			•		•	•	
317	Composite Capture	•			•		•	•	
318	S-Video Capture	•			•		•	•	
319	TV Capture	•			•		•	•	
320	RGB Capture	•			•		•	•	
321	Image Quality Test				•		•	•	
322	IR Camera Presence				•		•	•	

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
301	1	Use the preview pin	0	0	1	Whether the capture pin (default) or preview pin should be used.
302	1	Use the preview pin	0	0	1	Whether the capture pin (default) or preview pin should be used.
303	1	Use the preview pin	0	0	1	Whether the capture pin (default) or preview pin should be used.
304	1	Use the preview pin	0	0	1	Whether the capture pin (default) or preview pin should be used.
305	1	Use the preview pin	0	0	1	Whether the capture pin (default) or preview pin should be used.
316	1	Use the preview pin	0	0	1	Whether the capture pin (default) or preview pin should be used.
317	1	Use the preview pin	0	0	1	Whether the capture pin (default) or preview pin should be used.
318	1	Use the preview pin	0	0	1	Whether the capture pin (default) or preview pin should be used.
319	1	Use the preview pin	0	0	1	Whether the capture pin (default) or preview pin should be used.
320	1	Use the preview pin	0	0	1	Whether the capture pin (default) or preview pin should be used.

Test	Parameter	Name	Default	Min	Max	Note(s)
321	1	Use the preview pin	0	0	1	Whether the capture pin (default) or preview pin should be used.
	6	Calibration Mode	0	0	1	Enables calibration (Interactive) mode.
	7	Horizontal Segments	10	1	200	The maximum number of horizontal segments the input will be divided when scanning for the QR code.
	8	Vertical Segments	7	1	200	The maximum number of vertical segments the input will be divided when scanning for the QR code.
	9	Validation Text	"This is a QR code for Eurosoft automated testing."	1	255	The valid QR code text to test for.

Descriptions

301 - Capture Driver

This test will check that the device has basic functionality.

302 - Composite Capture Driver

This test will check that the device has basic functionality.

303 - S-Video Capture Driver

This test will check that the device has basic functionality.

304 - TV Capture Driver

This test will check that the device has basic functionality.

305 - RGB Capture Driver

This test will check that the device has basic functionality.

316 - Capture

This digital test will try to display an input capture signal and display it on the interactive test window.

If the video quality is satisfactory then the green button should be pressed to pass the test.

Note: If the port being tested does not have a signal attached, the display is likely to be a pure blue screen. Input signals can be delivered to the port under test by devices such as video cameras, DVD players or television antennae.

Note: For this test to be available, suitable device drivers need to be loaded on the system under test.

317 - Composite Capture

This analogue test will try to connect an output pin on a source filter to a sink filter, and set the appropriate input port.

If the video quality is satisfactory then the green button should be pressed to pass the test.

Note: If the port being tested does not have a signal attached, the display is likely to be a pure blue screen. Input signals can be delivered to the port under test by devices such as video cameras, DVD players or television antennae.

Note: For this test to be available, suitable device drivers need to be loaded on the system under test.

318 - S-Video Capture

This analogue test will try to connect an output pin on a source filter to a sink filter, and set the appropriate input port.

If the video quality is satisfactory then the green button should be pressed to pass the test.

Note: If the port being tested does not have a signal attached, the display is likely to be a pure blue screen. Input signals can be delivered to the port under test by devices such as video cameras, DVD players or television antennae.

Note: For this test to be available, suitable device drivers need to be loaded on the system under test.

319 - TV Capture

This analogue test will try to connect an output pin on a source filter to a sink filter, and set the appropriate input port.

If the video quality is satisfactory then the green button should be pressed to pass the test.

Note: If the port being tested does not have a signal attached, the display is likely to be a pure blue screen. Input signals can be delivered to the port under test by devices such as video cameras, DVD players or television antennae.

Note: For this test to be available, suitable device drivers need to be loaded on the system under test.

320 - RGB Capture

This analogue test will try to connect an output pin on a source filter to a sink filter, and set the appropriate input port.

If the video quality is satisfactory then the green button should be pressed to pass the test.

Note: If the port being tested does not have a signal attached, the display is likely to be a pure blue screen. Input signals can be delivered to the port under test by devices such as video cameras, DVD players or television antennae.

Note: For this test to be available, suitable device drivers need to be loaded on the system under test.

321 - Image Quality Test

This test will scan the live video signal for valid QR codes. These codes will be decoded and checked against a configured validation string. If a valid string is found the test will pass with no user input required.

If the test is run in calibration mode, the test will become a interactive test. The live video signal will be displayed and a box will locate any detected QR codes to allow the test image to be placed in the environment in focus. A button will be present to produce the QR code required for the supplied validation string.

Note: The QR code to be tested will need to be printed and placed in a location within the video feed.

Note: Higher grid settings will increase the time it takes to sample each image but will improve the detection of smaller QR codes.

322 - IR Camera Presence

This test will check the system for the presence of a Infra-red supporting camera. Infra-red cameras allow for a clear picture regardless of lighting levels and are used by Microsoft Hello for facial recognition.

Error Codes

Error Code	Name
0x00/001	Failed to pause the captured video test.
0x01/001	Failed to run the captured video test.
0x02/001	Failed to stop the captured video test.
0x03/3FF	User chose to fail the test.
0x04/001	Internal Error Control capture window.
0x05/001	Failed to set window style.
0x06/001	Failed to show the window.
0x07/001	Internal Error.
0x08/001	Failed to initialise the graph builder.
0x09/001	Failed to create device enumeration.
0x0A/3FF	The device available does not match the test to be executed.
0x0B/3FF	The User did not respond.
0x0C/3FF	Unable to sample capture image.
0x0D/3FF	Unable to find any QR Codes.
0x0E/3FF	Unable to find the matching QR Code.
0x0F/001	Unable to initialise required drivers for video overlay.
0x10/001	Unable to initialise required drivers for video overlay.

Troubleshooting

Error Code(s)	Potential Reason
0x00/001 0x01/001 0x02/001 0x03/3FF 0x04/001 0x05/001 0x06/001 0x07/001 0x08/001 0x09/001 0x0B/3FF 0x0F/001	Windows® driver issues. Capture card issues. Review Operating system is up to date.
0x0A/3FF 0x10/001	The device does not have the required capabilities for the test.
0x03/3FF	If it is testing a USB style Camera there may not be enough power for the device, especially it working off a non-powered hub. Please consult the operator for further details of the error.
0x03/3FF 0x0C/3FF 0x0D/3FF 0x0E/3FF	The required QR code was not found. This could be due to a mistake in testing parameters, protective film over the camera or a failure in the resolution or quality of the camera.
0x0C/3FF 0x0F/001	If the graphics card drivers are not up to date or are using the Microsoft Basic Display Adapter the test may be unable to sample the captured image. Please check that your drivers are up to date.

610X - Battery

Overview

This is a test group for testing system batteries capable of running the system without AC power. The group has been designed to test the charging circuit and battery device attached to the system but does not test external uninterruptible power supplies.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
303	Voltage						•	•	•
305	Performance				•		•	•	•
306	Quick State	•			•		•	•	•
308	Core Recognition						•	•	•
309	Advanced State	•			•		•	•	•
310	Charge Level						•	•	•
311	Capacity Life						•	•	•

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
303	2	Minimum Voltage	10	1	50	Minimum Voltage in Volts.
	3	Maximum Voltage	20	1	50	Maximum Voltage in Volts.
305	1	Duration	600	360	604800	Time to run the test, in seconds, maximum 1 week.
	7	Minimum Charge	75	1	94	Minimum Charge or Capacity in percent.
309	1	Duration	120	60	604800	Time to run the test, in seconds, maximum 1 week.
310	6	Maximum Retries	3	0	360	Number of retry attempts if charge is outside of parameters.
	7	Minimum Charge	20	1	99	Minimum Charge or Capacity in percent.
	8	Maximum Charge	100	2	100	Maximum Charge in percent.
	10	Charge Cycles Lower Threshold	0	0	10000	Lower Cycle Range
	11	Charge Cycles Upper Threshold	0	0	10000	Upper Cycle Range
311	7	Minimum Charge	60	1	100	Minimum Charge or Capacity in percent.
	9	Minimum Capacity Threshold	1000	0	100000	Minimum capacity in mWh.
	10	Charge Cycles Lower Threshold	0	0	10000	Lower Cycle Range
	11	Charge Cycles Upper Threshold	0	0	10000	Upper Cycle Range

Descriptions

303 - Voltage

The Voltage test measures the voltage rating for the battery in the system. If the voltage is outside the Minimum and Maximum Voltage the test will fail.

Note: The Battery should be between 10 and 95% charged. Therefore it may be necessary to exercise the system unplugged with another test before executing this one.

Test Time: Approximately 4s

305 - Performance

The Performance test will check the discharge of the battery while the system is under load. If the battery charge falls below the charge threshold then the test will fail. If the battery charge is above 95% then the test will wait up to five minutes to reach this level.

Note: The duration parameter is the duration of the test after reaching 95% charge.

Test Time: Dependant on the duration

306 - Quick State

The Quick state test checks the power jack detection of the system's battery charging circuit. The user will be prompted to insert or remove the power jack. If the state change is detected correctly then the user will be prompted to remove or reinsert the power jack once more. If this is successfully detected then the test will pass.

Test Time: Dependant on user input

308 - Core Recognition

The Core Recognition test will check if a valid system battery is found on the system and that it is able to report its current charge state.

309 - Advanced State

The Advanced State test checks the discharge and charge states of the system's battery under load. It ensures the state returns to charging after discharging.

Note: If the Battery charge is above 95% then the test will wait up to five minutes for the battery to discharge to a testable value.

Test Time: Dependant on the duration.

310 - Charge Level

The Charge Level test checks the Battery charge. This test will fail if the power adaptor is not connected. If the charge level is within the configured parameters, this test will pass. If the charge level is outside of the configured parameters, the battery charge will be checked according to the retry parameter, with a 10 second delay between each attempt.

Test Time: Dependant on the charge level and retries configured.

311 - Capacity Life

The Capacity Life test checks the Battery current capacity with the capacity at the time of manufacture to estimate how much the battery has degraded. If the capacity level is above the configured parameter, this test will pass.

Note: The charge cycle thresholds can be configured and will cause the test to return not available if the battery has cycled (charged and discharged) a number of times outside of the thresholds. This allows the test to be called with different capacity thresholds depending on the number of cycles the battery has experienced.

Error Codes

Error Code	Name
0x00/003	Battery charge is over 95%.
0x01/003	Battery charge is under 10%.
0x02/3FF	Battery charge has failed to discharge during the test.
0x03/3FF	Battery voltage is outside the range of test settings.
0x04/3FF	Unable to find a battery to test.
0x05/3FF	Battery charge or discharge state detected as incorrect.
0x06/3FF	Battery is not detected as rechargeable.
0x07/3FF	Timed out detecting removal or insertion of ac adapter.
0x08/3FF	Unable to retrieve the battery charge rate.
0x09/3FF	Unable to retrieve the battery state.
0x0A/3FF	Battery charge is over 95% after 5 minutes of testing.
0x0B/018	The charge rate was outside the threshold.
0x0C/3FF	The voltage test is not available on this battery.
0x0D/001	An error occurred with the interactive test window.
0x0E/3FF	The battery capacity was too low.
0x0F/3FF	Unable to read the battery charge cycles.
0x10/080	The battery cycle count was outside of the defined range.

Troubleshooting

Error Code(s)	Potential Reason
0x00/003 0x01/003 0x0A/3FF	The battery in it's current charge state is not suitable for testing as it is required to be between 10 and 95%. The battery should be charged or discharged as required prior to test execution.
0x02/3FF 0x03/3FF 0x04/3FF 0x05/3FF 0x06/3FF 0x08/3FF 0x09/3FF 0x0B/018 0x0E/3FF	Potential general battery failure. It is advisable to review your test settings as newer systems require longer discharge times. The system battery may require being less than default value especially if it is a tablet.
0x07/3FF	Timed out awaiting a response from the user. This could mean that the system does not support detection of the AC Adapter.
0x08/3FF 0x0C/3FF	On older systems there is potential that the charge or discharge reading is invalid or not supported.
0x0D/001	Unknown error unrelated to the battery most likely a general operating system error.
0x02/3FF 0x03/3FF 0x04/3FF 0x05/3FF 0x06/3FF 0x08/3FF 0x08/3FF 0x09/3FF 0x0B/018 0x0C/3FF 0x0E/3FF	This may occur due to a windows driver (Battery or Charging circuitry) related issue or malfunction in the electronics in the battery or the charging circuit.
0x0F/3FF 0x10/080	The battery charge cycle count is either not supported for this battery, or is outside of the configured range.

620X - Optical

Overview

This is a group that tests optical hardware: CDR, CDRW, DVDR and DVDRW. There are a number of tests within this group covering reading, writing and Mechanical stress. Write tests are also available for both ISO images and simple directory transfer.

Supported Media

Assuming the media is supported by the device under test, the following media are supported:

CD-ROM, CD-R, CD-RW

DVD-ROM, DVD-R, DVD+R, DVD-RW, DVD+RW, DVD-DL

The following media are not supported: CD-Audio (All types), VCD, SVCD DVD-Audio (All types), DVD-Video (All types), DVD-RAM The tests does not currently support Blue Ray or HD DVD devices.

When testing on a DVD drive the test requires there to be DVD media in the drive with sufficient data for the test to be run. If the media is a CD then the tests will not be available, this also happens if the DVD does not have enough data for a good sample.

If there is no media in the drive and the user setting is interactive the media will be requested if no media is inserted a test failure will result. In non-interactive mode this will result in the test not being available.

Note: It is very important during the tests that no other applications are also reading the media as this may affect the test result.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	Linear Read			•			•	•	•
302	Random Read			•			•	•	•
303	Advanced Movement			•			•	•	•
304	Media Erase			•			•	•	•
305	Directory Write			•			•	•	•
306	ISO Image Write			•			•	•	•
307	Media Eject						•	•	•

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
301	1	Duration	0	0	604800	Time to run the test for, seconds, maximum 1 week
	2	Coverage	100	1	100	Percentage of media to check
	7	Minimum Transfer Rate	15	0	1000	The minimum transfer speed the drive is allowed to reach before failing the test. This is in KB/S
	9	Maximum Errors	TRUE	1	50	Continues to test until the maximum number of errors is reached. These are only errors directly associated with reading the drive.
	10	Windows Event Error Count	1000	0	10000	Windows® Event Error count between reads. 0 indicates the Windows® event error will not be read.
302	1	Duration	60	1	604800	Time to run the test for, seconds, maximum 1 week
	7	Minimum Transfer Rate	15	0	1000	The minimum transfer speed the drive is allowed to reach before failing the test. This is in KB/S
	9	Maximum Errors	TRUE	1	50	Continues to test until the maximum number of errors is reached. These are only errors directly associated with reading the drive.
	10	Windows Event Error Count	1000	0	10000	Windows® Event Error count between reads. 0 indicates the Windows® event error will not be read.

Test	Parameter	Name	Default	Min	Max	Note(s)
303	1	Duration	60	1	604800	Time to run the test for, seconds, maximum 1 week
	9	Maximum Errors	TRUE	1	50	Continues to test until the maximum number of errors is reached. These are only errors directly associated with reading the drive.
	10	Windows Event Error Count	1000	0	10000	Windows® Event Error count between reads. 0 indicates the Windows® event error will not be read.
304	3	Eject or Reload Disc	TRUE	FALSE	TRUE	Eject or Reload disc after test.
305	3	Eject or Reload Disc	TRUE	FALSE	TRUE	Eject or Reload disc after test.
	4	Directory	"."	1	MAX_PATH	Path to an existing directory to be written to the disc. Files in this directory will be written to the root of the disc. When left blank, the test will write default test files to the root of the disc.
	5	Recursive	FALSE	FALSE	TRUE	True sets the test to include the writing of sub directories present in the specified directory of the Directory parameter. False sets the test to ignore sub directories present in the specified directory of the Directory parameter.
306	3	Eject or Reload Disc	TRUE	FALSE	TRUE	Eject or Reload disc after test.
	6	Filename	"."	1	MAX_PATH	Put in the path and Filename to the file to write.

Descriptions

301 - Linear Read

Performs read testing of the chosen media in the device using a basic reading algorithm. Test medium must have at least 50MB of data, more is recommended. The higher the data content of the media the better the test.

Test Time: Dependant on parameters.

302 - Random Read

Performs read testing of the chosen media in the device using a complex reading algorithm. Test medium must have at least 50MB of data, more is recommended. The higher the data content of the media the better the test.

Test Time: Dependant on parameters.

303 - Advanced Movement

Applies the maximum amount of stress to the laser positioning actuator for the duration of the test. Test medium must have at least 50MB of data, more is recommended. The higher the data content of the media the better the test.

The Advanced movement test includes a Laser Refocusing test, used for checking that the laser can refocus accurately. This test is dependent on the type of media inserted. If a Multi layer disc is inserted then the refocusing across the layers is also tested.

Test Time: Dependent on parameters.

304 - Media Erase

Tests the devices ability to erase an erasable disc. A device or medium fault will cause this test to fail. Test medium must be erasable and supported by the device.

Test Time: Dependent on the amount of data on the media.

305 - Directory Write

Tests the devices ability to write a directory structure. The test will write files from a specified directory source to the root of the disc. If no directory is specified then default test files are used. The test can also be set to include or exclude sub directories. Test medium must be writable and supported by the device.

Note: Directory structures written to disc must not exceed 100MB.

Note: The default "." means that the current working directory will be written to the medium. If medium is blank default parameter values execute without error.

Test Time: Dependant on the size of the directory being written.

306 - ISO Image Write

Tests the devices ability to write an ISO image. Test medium must be writable and supported by the device. Correct media type must be present.

Note: Images used must not exceed 100MB and be of type ISO only.

Note: The default value must be set with a valid ISO image or the test will not be available.

Test Time: Dependent on the size of the ISO file being written.

307 - Media Eject

Tests the devices ability to eject the media.

Test Time: 1s

Error Codes

Error Code	Name
0x00/00A	The medium inserted is too small to give meaningful results.
0x01/00A	The amount of data is incorrect for this test.
0x02/3FF	The media is not suitable for this test.
0x03/001	Failed to read the media.
0x04/00B	The transfer speed is too slow.
0x05/3FF	Failed to write to the media.
0x06/3FF	Cannot retrieve windows® operating system handle for the device.
0x07/3FF	The drive is not ready.
0x08/001	The Media is not ready.
0x09/006	Read size mismatch.
0x0A/006	Error Setting position of Read.

Troubleshooting

Error Code(s)	Potential Reason
0x00/00A	The media is too small to perform this test. Review the available media and make a different selection as appropriate.
0x01/00A 0x02/3FF 0x06/3FF	Check the parameters, data and media to perform the test. Change the test parameters as required and retry the test.
0x03/001 0x04/00B 0x05/3FF 0x06/3FF 0x07/3FF 0x08/001 0x09/006 0x0A/006	Possible media or device failure. Check the operating system optical drivers are also up to date.

641X - Biometric

Overview

This is a test group for biometric devices. The biometric group of tests has been designed to support the latest generation of biometric hardware.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	Core Recognition						•	•	

Parameters

Descriptions

301 - Core Recognition

Check that the fingerprint device is detected within Windows®.

Error Codes

Error Code	Name
0x00/3FF	General Error Executing tests. Review all test parameters are correct and biometric driver and device are available.

Troubleshooting

Error Code(s)	Potential Reason
0x00/3FF	Windows® Driver for device not available. Device not working as required. The Biometric chipset is not supported.

670X - Motherboard

Overview

This is a group that tests the Motherboard.

Tests may not run (or may not run all sub-tests) if drivers and libraries are missing, hardware is unsupported or errors are encountered. One or more sub-tests may not be available or compatible with all operating systems.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	North-bridge						•	•	•
302	South-bridge						•	•	•
303	CMOS Clock						•	•	•
304	CMOS Checksum						•	•	•
305	CMOS Battery						•	•	•
306	System Fan						•	•	•
307	Voltage Core Detection						•	•	•
308	System Temperature						•	•	•
309	BIOS Password						•	•	•

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
301	1	Duration	30	1	604800	Time in seconds individually allocated to the Graphics bus sub-test.
	2	FSB Speed	0	0	50000	Target frequency - the expected value. A value of 0 means that the front side bus speed is not tested.
	6	FSB Tolerance	5	5	100	Tolerance percentage for FSB Speed.
303	11	Ignore Time-zone Differences	TRUE	FALSE	TRUE	Ignore CMOS time failures caused by time-zones.
305	4	Minimum Battery Voltage	150	0	10000	Minimum acceptable battery voltage in centi-volts. For example 180 = 1.8 volts.
	5	Maximum Battery Voltage	350	0	10000	Maximum acceptable battery voltage in centi-volts. For example 180 = 1.8 volts.
306	9	Minimum Speed	100	0	5000	Minimum speed of the CPU fan in RPM.
308	8	Maximum Temperature	80	0	200	Maximum Temperature. (Celsius)
	10	Temperature Source	3	1	3	Motherboard Temperature source. 1 = CPU temperature, 2 = Minimum sensor temperature, 3 = Maximum sensor temperature.
309	12	Check System Password	FALSE	FALSE	TRUE	If True, check the System password. Otherwise, check the Set-up password.
	13	Treat Set as Fail	TRUE	FALSE	TRUE	If True, will treat a set password as a test failure, otherwise treat a cleared password as a test failure.
	14	Treat Unknown as Fail	FALSE	FALSE	TRUE	If True, if unable to verify the presence of the password, fail the test.

301 - North-bridge

Sub-tests:

1. FSB Speed - the FSB (HT link / QPI) speed is read and checked to see if it is within the tolerance of the target speed, as defined by the outlined parameters below.

2. Graphics bus - performs a basic memory test on all accessible video memory. The test works by filling the screen with a random colour, then individually checking that each pixel is displaying this colour.

3. Memory bus - performs a basic test on the memory configuration.

Note: If the whole test passes the extra information will contain a tested percentage of the graphics component of the North-bridge.

302 - South-bridge

Sub-tests:

1. I/O port - performs a basic test on the first detected serial port.

2. Ethernet - performs a basic local host ping test.

If any sub-test fails, the whole test is considered a fail.

Test Time: 5s

303 - CMOS Clock

Real-time clock - the CMOS real-time clock date and time are compared to the system date and time. A maximum difference of 5 seconds is permitted, to allow for small timing delays.

304 - CMOS Checksum

Checksum - the CMOS checksum is calculated and compared to the checksum stored in CMOS.

305 - CMOS Battery

Battery Voltage - the CMOS battery voltage is read and checked to see if it falls between the minimum and maximum defined by the parameters below.

306 - System Fan

System Fan Speed test. The system fan speed is tested to be larger than a given minimum value specified by a parameter. If there are multiple fans in the system, each fan is tested to be faster than the specified minimum speed.

Test Time: 1 Second

307 - Voltage Core Detection

Voltage core detection test. The test will succeeded if any of the following system voltages can be retrieved. DRAM Voltage Core Voltage +3.3V +5V +12V -5V -12V

Test Time: 1 Second

308 - System Temperature

This test retrieves the system temperature. The value is checked to see if it falls between the minimum and maximum defined by the parameters.

Test Time: 1 Second

309 - BIOS Password

This test checks for the presence and setting of the System or Set-up BIOS Password. If found and set the test will either pass or fail dependent on the test parameters.

Note: Not all systems support checking the BIOS Password within Windows. This test has been developed for HP, Dell and Lenovo systems, but not all the systems made by these manufacturers will support the test.

Error Codes

Error Code	Name
0x00/3FF	Unable to load DLLs required for test.
0x01/017	The CMOS Real-time clock is incorrect.
0x02/3FF	The CMOS Checksum is incorrect.
0x03/3FF	The CMOS Battery voltage is outside tolerances.
0x04/3FF	The CMOS Battery voltage is unable to be read.
0x05/016	The FSB speed is outside tolerances.
0x06/3FF	Unable to create window class.
0x07/3FF	Unable to create window.
0x08/3FF	Unable to update window.
0x09/3FF	Unable to get control of window.
0x0A/3FF	Unable to set draw mode.
0x0B/3FF	Unable to set window size.
0x0C/080	Incorrect pixel detected.
0x0D/3FF	Unable to find a serial port to test.
0x0E/3FF	Unable to open a serial port to test.
0x0F/3FF	Unable to create an ICMP file.
0x10/3FF	General Ping-test error.
0x11/3FF	Ping-test timed out.
0x12/3FF	Ping-test reply buffer too small.
0x13/010	Unable to write the port configuration.
0x14/010	Unable to read the port configuration.
0x15/010	The set and read configurations do not match.
0x16/3FF	The battery voltage is unavailable to read.
0x17/3FF	Memory controller check failed.
0x18/3FF	The FSB speed parameter has not been set.
0x19/3FF	Unable to find sensor.
0x1A/019	The temperature result was outside the tolerance.
0x1B/3FF	The fan speed was outside the tolerance.
0x1C/3FF	A battery power failure has been detected by the CMOS.
0x1D/3FF	Unable to find the BIOS password state.

Error Code	Name
0x1E/3FF	The BIOS password was set.
0x1F/3FF	The BIOS password was not set.

Troubleshooting

Error Code(s)	Potential Reason
0x00/3FF	A required DLL failed to load. Ensure that all extra directories are present and contain all required files.
0x01/017 0x02/3FF 0x03/3FF 0x04/3FF 0x16/3FF 0x1C/3FF	The CMOS test has failed. This could be because of faulty CMOS or CMOS battery. Try replacing the battery.
0x17/3FF	The memory subtest has failed. Ensure there is enough memory available on the system to test.
0x06/3FF 0x07/3FF 0x08/3FF 0x09/3FF 0x0A/3FF 0x0B/3FF 0x0C/080	The graphics subtest has failed. This can occur if user interaction is detected during the test as the OS may access video memory to update cursor locations.
0x0D/3FF 0x0E/3FF 0x13/010 0x14/010 0x15/010	The serial subtest has failed. Re-test with serial port group for extended results.
0x0F/3FF 0x10/3FF 0x11/3FF 0x12/3FF	The network ping subtest has failed. Re-test with network group tests for extended results.
0x05/016 0x18/3FF	The FSB subtest has failed. Ensure the correct tolerance was entered for the test parameter.
0x19/3FF 0x1A/019 0x1B/3FF	Related sensor test failed. Either the sensor is not available or the values are not in the range. Retest with hardware monitor.
0x1D/3FF 0x1E/3FF 0x1F/3FF	The BIOS password could not be found or was not in the state expected. If this is not expected double check test parameters and the device attributes for the password states.

681X - Operating System

Overview

This group tests the Operating System running on the computer. This diagnostic group is specifically for the Microsoft® Windows® operating system.

An operating system (OS) is software that manages computer hardware and software resources and provides common services for computer programs, and is an essential component of the system software in a computer system. In the case of hardware functions such as input and output and memory allocation, the operating system acts as an intermediary between programs and the computer hardware, although the application code is usually executed directly by the hardware and will frequently make a system call to an OS function or be interrupted by it.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
303	Event Log						•	•	
304	Kernel Response						•	•	•
305	Driver						•	•	
306	Signed Driver						•	•	
308	Security Support						•	•	
309	License						•	•	
310	System Files Check						•	•	•
311	Time Service Check						•	•	
312	Window 11 Compatibility				•		•	•	•

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
303	1	Include Shut-down Events	TRUE	FALSE	TRUE	If "unexpected shut-down" events should be included.
	3	Check Error level events	FALSE	FALSE	TRUE	If Error level events should be checked in addition to Critical.
	5	Maximum Duration	3600	0	302400	The maximum duration of the test. If the test takes longer than this time then the test will fail.
304	4	Time-out	10	1	120	The maximum time to wait for a kernel response.
310	6	System File	""	0	255	Name of the system file with absolute path which should be checked for integrity. If filename is left empty, this test will scan all the system files.
311	8	Treat As Fail	FALSE	FALSE	TRUE	Flag to check whether a failure result should be treated as Fail or Not Available.
312	7	Time-out	10	1	302400	Windows 11 compatibility test result window time-out, if time-out is 0 seconds, window will not be displayed.
	8	Treat As Fail	FALSE	FALSE	TRUE	Flag to check whether a failure result should be treated as Fail or Not Available.
	9	Basic Compatibility	FALSE	FALSE	TRUE	If set then DirectX, Secure boot enabled and Media Size are not required to pass.

Descriptions

303 - Event Log

This test checks the Security and System Event logs for any critical events. With the parameter set, error events can also be checked.

Applications and operating-system components can make use of this centralised event log service to report events that have taken place, such as a failure to start a component or to complete an action. Critical Event log errors can indicate a problem on the system, such as logging hard drive access failures on a failing hard drive.

304 - Kernel Response

This test checks the core functionality and responsiveness of the Windows® Kernel.

305 - Driver

This test checks the devices present in the system to ensure drivers have been installed. If any devices are found with missing or incorrectly installed drivers, the test will fail.

A driver provides a software interface to hardware devices, enabling operating systems and other computer programs to access hardware functions without needing to know precise details of the hardware being used. Correct device drivers are fundamental for the operation and functionality of the devices connected to your system. Incorrect drivers can result in incorrect device functionality and in some cases, damage to the hardware.

306 - Signed Driver

This test checks that the drivers present in the system are properly signed. If any drivers are not properly signed, this test will fail.

It is important to ensure that the drivers installed on the system are signed. An unsigned or incorrectly signed driver indicates tampering or an untrustworthy source that could put the system at risk. A device with incorrectly signed drivers could malfunction or monitor system operation in ways it should not.

308 - Security Support

This test checks the status of the Windows® Security Centre security providers, such as the state of the system's firewall and anti-virus. If any of the security providers have errors, the test will fail. It is important to ensure that the system has up to date and active security features to ensure protection against viruses, spyware and malicious data access.

309 - License

This test checks the operating system to ensure it is Genuine and Microsoft® Activated.

Microsoft® Product Activation is a DRM technology used in its Windows® operating system. The procedure enforces compliance with the program's end-user license agreement by transmitting information about both the product key used to install the program and the user's computer hardware to Microsoft®, inhibiting or completely preventing the use of the program until the validity of its license is confirmed.

It is important to ensure that Windows® is properly activated. On some versions of Windows®, failure to activate before the end of the grace period will result in loss of operating system functionality.

310 - System Files Check

This test checks the integrity of windows® System files or of any individual system file for corruption or any other issues, in the case of any detected issues, this test will report failure.

311 - Time Service Check

This test checks state of windows® Time Service, whether time service is running on the windows® System or not.

312 - Window 11 Compatibility

This test checks windows® 11 compatibility for this system.

Error Codes

Error Code	Name
0x01/096	Windows® is not Activated.
0x02/3FF	Windows® is not Genuine.
0x03/001	The Genuine Windows® test is unable to run.
0x04/001	An error occurred while Windows® was being checked.
0x05/093	Failing Windows® event log errors were found.
0x06/3FF	The kernel did not respond.
0x07/001	An error occurred while checking drivers.
0x08/093	One or more of the devices on the system had a missing or invalid driver.
0x09/095	One or more of the drivers on the system is not properly signed.
0x0A/3FF	The version of Windows® to test could not be determined.
0x0B/3FF	The system does not meet the memory requirements for Windows®.
0x0C/3FF	The system does not meet the processor requirements for Windows®.
0x0D/3FF	The system does not meet the disk drive requirements for Windows®.
0x0E/3FF	Windows® Security is not configured on the system.
0x0F/094	One or more security features on the system have an error.
0x10/3FF	The reading of the event log timed out.
0x11/3FF	Unable to determine the processor capabilities.
0x12/3FF	The system does not meet the display resolution requirements for Windows®.
0x13/3FF	The system does not meet the graphics card requirements for Windows®.
0x14/3FF	Failed to launch requested process.
0x15/3FF	System file scan detected system file issues or file corruption which require repair.
0x16/3FF	File does not exist or wrong file path.
0x17/3FF	WMI Initialization failure.
0x18/3FF	Architecture not compatible.
0x19/3FF	Non UEFI firmware not compatible.
0x20/3FF	Processor not compatible.
0x21/3FF	Minimum CPU cores not compatible.
0x22/3FF	Minimum Processor speed not compatible.
0x23/3FF	Driver Version not compatible.
0x24/3FF	Secure boot setting not compatible.

Error Code	Name
0x25/3FF	Disk partition type not compatible.
0x26/3FF	Minimum Memory not compatible.
0x27/3FF	Disk Free Space not compatible.
0x28/3FF	TPM not compatible.
0x29/3FF	A general Window creation error.

Troubleshooting

Error Code(s)	Potential Reason
0x01/096	Windows® is not activated. Windows® can be activated by going to the System Properties window and clicking "Activate Windows now" and following the on screen instructions.
0x02/3FF 0x03/001	Windows® is not genuine or could not be checked. Windows® genuine checks are preformed periodically after Windows® has been activated and can fail if the system hardware changes. To ensure that Windows® runs and passes the genuine check, Windows® may need to be re-activated.
0x05/093	A critical or error Windows® event was found. This may be the sign of a hardware or software fault on the system. The Windows® Event Log should be checked for further information on this event.
0x10/3FF	The event log read timed out. This may be a sign of a serious event log error or a very large event log. The Windows® Event Log should be cleared to increase the speed of its reading. This can be done by opening the Event Log. Alternatively the maximum duration parameter can be increased.
0x06/3FF	The kernel did not respond to the test. This may be caused by high system load or a fault in the operating system. If other applications are not running at the same time as the test, an operating system reinstall may be required.
0x07/001 0x08/093 0x09/095	An error was found with one or more device drivers present in the system. This may be caused by a missing or incorrectly signed driver. In the case of a missing driver, the Windows® Device Manager can be used. All devices with missing drivers will be shown with a yellow triangle. In the case of an incorrectly signed drivers, the failing device will need to be found in the device list.
0x0B/3FF 0x0C/3FF 0x0D/3FF 0x11/3FF 0x12/3FF 0x13/3FF	The system does not meet the required minimum specification for the version of Windows® being checked. Windows® performance will be reduced if the minimum specification is not met and may increase the maintenance required to keep the operating system running efficiently. The Windows® Experience Index can be used as an indication of operating system performance. This feature is available from the System Properties window from Windows® Vista to Windows® 8.
0x0E/3FF 0x0F/094 0x14/3FF	The Windows® Security Centre has found an error or is not currently monitoring any features. It is important to ensure the system security is kept up to date to ensure that the system performance and user data is not put at risk. The errors detected by the Windows® Security Centre can be viewed by opening the Windows® Action Centre. Some errors detected may be hidden in the Windows® Action Centre, but can be displayed by clicking the drop down arrow next to the security category. Items marked with "Currently Not Monitored" should be checked and any errors shown in red should be corrected to pass this test. The Windows® Security Centre does not start monitoring immediately on system start-up and may take a few minutes to begin. This is dependent on the speed and load on the system, as well as the delay for security applications to start.

Error Code(s)	Potential Reason
0x04/001 0x0A/3FF 0x15/3FF 0x16/3FF 0x17/3FF 0x18/3FF 0x19/3FF 0x20/3FF 0x21/3FF 0x22/3FF 0x23/3FF 0x24/3FF 0x25/3FF 0x26/3FF 0x27/3FF 0x28/3FF 0x29/3FF	A general error occurred with the test. This could be caused by a software or operating system error on the system.

690X - Hardware Monitor

Overview

Hardware Monitor is a group that provides the ability to test Hardware Monitor sensors. The types of sensor available are: temperature, fan speed and voltage.

All tests within this group have the same structure as follows:

The test checks the metric (temperature, speed or voltage) is within the percentage tolerance of the target. The user specifies the target value, tolerance and sensor identifier: the test passes if it the sensor value is within plus or minus the tolerance of the target, else it fails.

Test Tolerance

This is the percentage tolerance the sensor value must be within the target to pass the test. For example, if this is set to 10 and the target is 40C, then the sensor reading must be within 10% of 40C (36C to 44C).

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
312	System Temperature						•	•	•
313	CPU Temperature						•	•	•
314	CPU Fan						•	•	•
315	System Fan						•	•	•
316	Voltage Core Detection Test						•	•	•
318	Graphics Card Temperature						•	•	•

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
312	7	Maximum Temperature	80	0	200	Maximum Temperature. (Celsius)
313	7	Maximum Temperature	92	0	200	Maximum Temperature. (Celsius)
314	8	Minimum Speed	100	0	5000	Minimum speed of the fan in RPM.
315	8	Minimum Speed	100	0	5000	Minimum speed of the fan in RPM.
318	7	Maximum Temperature	80	0	200	Maximum Temperature. (Celsius)

Descriptions

312 - System Temperature

This test retrieves the system temperature. The value is checked to see if it falls between the minimum and maximum defined by the parameters.

Test Time: 1 Second

313 - CPU Temperature

CPU Temperature test. The test checks whether the CPU temperature resides between a minimum and a maximum value specified by the parameters.

Test Time: 1 Second

314 - CPU Fan

Test Time: 1 Second

315 - System Fan

System Fan Speed test. The system fan speed is checked and will fail if it is below the configured parameter. If there are multiple system fans then each one will be tested.

Test Time: 1 Second

316 - Voltage Core Detection Test

Voltage core detection test. The test would be succeeded if system voltages can be retrieved.

Test Time: 1 Second

318 - Graphics Card Temperature

Graphics Card Temperature. The test checks the temperature of the graphics card to reside between a minimum and a maximum value specified by the parameters.

Test Time: 1 Second

Error Codes

Error Code	Name
0x00/3FF	The sensor name parameter was not found.
0x01/3FF	The result was outside the tolerance.
0x02/019	The temperature result was outside the tolerance.
0x03/3FF	Unable to find sensor.
0x04/3FF	Failed to initialise external library in order to perform testing.
0x05/01C	The result sensor value is outside the tolerance. Extra information contains the sub-device number.

Troubleshooting

Error Code(s)	Potential Reason
0x00/3FF 0x01/3FF 0x02/019 0x03/3FF 0x05/01C	Check the system information for your system to ensure the correct parameter values are being used.
0x04/3FF	Ensure all files are available for testing.

700X - Solid State Drives

Overview

SSD is a test group for solid state drives and eMMC Devices. A solid-state drive or eMMC is a data storage device that uses solid-state memory to store persistent data in the same manner of a traditional block I/O hard disk drive. These devices are distinguished from traditional magnetic disks such as hard disk drives or floppy disk, which are electromechanical devices containing spinning disks and movable read-write heads. In contrast, these use microchips that retain data in non-volatile memory chips and contain no moving parts. Compared to electromechanical HDDs, they are typically less susceptible to physical shock, are silent, have lower access time and latency.

The drive being tested should be mounted as a windows volume and have data on it to test, otherwise the test may stall.

Note: 1. Some tests use a drive's S.M.A.R.T. functionality to run. S.M.A.R.T. (Self-Monitoring, Analysis, and Reporting Technology), is a monitoring system for computer media to detect and report on various indicators of reliability. This functionality is not available on all devices. S.M.A.R.T documentation is available online for the tests and can be used for further information if required.

Note: 2. When comparing the test parameters duration and coverage for the actual testing time this will only be the same under one condition. A set parameter coverage of 100% or a set parameter duration which has sufficient time to test to the entire media. This is because of varying algorithms and delays moving to the next test location. Other parameters may be irrelevant due to hardware access times with this type of test. This is because with a duration setting, each physical read is performed sequentially. Whereas with the coverage parameter, the reading is distributed evenly across the hardware being tested. Therefore there maybe a delay due to moving to the next hardware location.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	Linear Read						•	•	•
302	Random Read						•	•	•
306	S.M.A.R.T. Failure						•	•	•
307	S.M.A.R.T. Short						•	•	•
308	S.M.A.R.T. Conveyance						•	•	•
309	S.M.A.R.T. Extended						•	•	•
310	Idle Temperature						•	•	•
311	Instantaneous Temperature						•	•	•
312	S.M.A.R.T. Threshold						•	•	•
313	S.M.A.R.T. Custom						•	•	•
314	Wear Range Delta						•	•	•
315	Drive Health						•	•	•
316	Intelligent Scan						•	•	•

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
317	Drive Overall Health						•	•	•
318	ZeroData Disk Erase Test						•	•	•

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
301	1	Duration	0	0	604800	Time to run the test for in seconds, maximum 1 week.
	2	Coverage	100	1	100	Percentage of the drive to test.
	5	Windows Event Error Count	1000	0	10000	Windows® Event Error count between reads. 0 indicates the Windows® event error will not be read. The smaller the number then the bigger the impact on test speed.
302	1	Duration	60	1	604800	Time to run the test for in seconds, maximum 1 week.
	5	Windows Event Error Count	1000	0	10000	Windows® Event Error count between reads. 0 indicates the Windows® event error will not be read. The smaller the number then the bigger the impact on test speed.
306	6	S.M.A.R.T Error Log	FALSE	FALSE	TRUE	Enable SMART error log component of Imminent Failure test.
307	7	Self-test Duration Override	30	0	604800	S.M.A.R.T. Self-test minimum duration override. Set to 0 to use the estimated drive Self-test duration.
308	7	Self-test Duration Override	30	0	604800	S.M.A.R.T. Self-test minimum duration override. Set to 0 to use the estimated drive Self-test duration.
309	7	Self-test Duration Override	30	0	604800	S.M.A.R.T. Self-test minimum duration override. Set to 0 to use the estimated drive Self-test duration.

Test	Parameter	Name	Default	Min	Max	Note(s)
310	1	Duration	30	0	604800	Time to run the test for in seconds, maximum 1 week.
	9	Maximum Temperature	70	0	200	Maximum Temperature. (Celsius)
	10	Pre-Test Delay	5	0	604800	Time to wait before starting the test.
311	9	Maximum Temperature	70	0	200	Maximum Temperature. (Celsius)
312	11	Attribute ID	0	0	256	The Attribute ID to test.
	14	Inclusive Mode	0	0	1	If set the test will fail if the attribute matches any thresholds.
313	11	Attribute ID	0	0	256	The Attribute ID to test.
	12	Upper Threshold	0	0	65535	If the attribute value is above this the test will fail. Ignored if 0.
	13	Lower Threshold	0	0	65535	If the attribute value is bellow this the test will fail. Ignored if 0.
	14	Inclusive Mode	0	0	1	If set the test will fail if the attribute matches any thresholds.
	15	Normalised Mode	1	0	1	If set the normalised attribute value will be used, otherwise the raw data will be used.
	22	48 Bit Trim	1	0	1	If set the S.M.A.R.T. attribute value will be trimmed and only bits 33 to 48 will be used. This will only work if Normalised mode is false.
314	7	Self-test Duration Override	30	0	604800	S.M.A.R.T. Self-test minimum duration override. Set to 0 to use the estimated drive Self-test duration.
315	16	Upper Threshold	100	0	604800	Maximum reallocated sector count. If raw value of attribute is above the threshold, then disk has health issues.

Test	Parameter	Name	Default	Min	Max	Note(s)
316	1	Duration	0	0	604800	Time to run the test for in seconds, maximum 1 week.
	21	Intelligent Scan Speed	1	1	3	Specifies the speed setting for the intelligent scan test, (3 is fastest)
317	13	Threshold	75	1	100	If the attribute value is bellow this the test will fail. Ignored if 0.

Descriptions

301 - Linear Read

Exercises a drive's read capability using linear (incrementally increasing) read addresses. Success or failure of each read is monitored. The Windows event log can be monitored to fail the test if any drive errors occur during testing.

302 - Random Read

Exercises a drive's read capability using pseudo-random read addresses (these are randomly generated using a fixed computational process). A quick benchmark is performed on the device to display a read rate. Success or failure of each read is monitored. The Windows event log can be monitored to fail the test if any drive errors occur during testing.

306 - S.M.A.R.T. Failure

This test checks the "SMART RETURN STATUS" of S.M.A.R.T. reporting, to ensure that the drive is in a reliable condition. A failure of this test indicates a relatively high probability that the drive will not be able to honour its specification and is about to fail.

Test Time: 1 to 5 seconds.

307 - S.M.A.R.T. Short

This test executes the sub-command "SMART Short self-test routine" within the "SMART EXECUTE OFF-LINE IMMEDIATE" command. This will check the electrical and mechanical performance as well as the read performance of the disk. Electrical tests might include a test of buffer RAM, a read-write circuitry test, or a test of the read-write head elements. Mechanical test includes seeking and servo on data tracks. Scans small parts of the drive's surface. Checks the list of Pending sectors that may have read errors.

Test Time: Usually under two minutes but is device dependent. There is a test time limit imposed by the manufacturer of the drive.

308 - S.M.A.R.T. Conveyance

This test executes the sub-command "SMART Conveyance self-test routine" within the "SMART EXECUTE OFF-LINE IMMEDIATE" command. This test is defined by the drive manufacturer and is intended as a quick test to identify damage incurred during transporting of the device from the drive manufacturer to the computer manufacturer.

Test Time: Several minutes but is device dependent.

309 - S.M.A.R.T. Extended

This test executes the sub-command "SMART Extended self-test routine" within the "SMART EXECUTE OFF-LINE IMMEDIATE" command. This is a longer and more thorough version of the short self-test and scans the entire disk surface, with no time limit.

Test Time: Hundreds of minutes, this is device dependent. Approximately one gigabyte per minute for modern drives.

310 - Idle Temperature

This test checks the temperature reading of the Hard Drive against the minimum and maximum test parameters. This test is designed to be run prior to testing the Hard Drive and will take temperature readings over the set duration and will fail if any readings are outside of tolerances.

Note: Not all hard drives have temperature sensors. If no sensor can be found the test will return not available.

Test Time: Dependent on test parameter

311 - Instantaneous Temperature

This test checks the temperature reading of the Hard Drive against the minimum and maximum test parameters. This test is designed to be run after tests have been run and will return not available if no tests have been run within the configured time period.

Note: Not all hard drives have temperature sensors. If no sensor can be found the test will return not available.

Test Time: 1 Second

312 - S.M.A.R.T. Threshold

This test checks the set S.M.A.R.T. Attribute's value against its threshold.

Test Time: 1 Second

313 - S.M.A.R.T. Custom

This test checks the set S.M.A.R.T. Attribute's value. The upper and lower thresholds can be set to fixed values or configured to use the Attribute's threshold to test.

Note: If no thresholds are set the test can be used to confirm the support for the Attribute.

Test Time: 1 Second

314 - Wear Range Delta

This test checks the set S.M.A.R.T. Attribute Wear Level (177) value. Wear level delta is a wear level difference between most used and least used sectors. If value is equal to the threshold, then disk data backup and disk replacement is recommended even if disk is not showing any apparent issues.

Note: Test uses threshold defined by manufacturer in Smart data.

315 - Drive Health

This test checks a list of S.M.A.R.T. Attributes for disk health. For perfect health raw value of all the attributes must be 0.

Note: Maximum threshold for only Reallocated sector count can be manually adjusted.

316 - Intelligent Scan

The Intelligent Scan algorithm is a unique alternative to traditional Linear Read testing that provides a big time saving benefit when scanning large media for issues such as bad sectors, with little to no loss of test accuracy.

Test Time: Dependent on media size and data

317 - Drive Overall Health

This test checks the drive life estimate and will fail if it is below the threshold.

Test Time: 1 Second

318 - ZeroData Disk Erase Test

This test checks the drive was erased successfully by ZeroData Erase utility.

Error Codes

Error Code	Name
0x00/001	Unable to read drive information.
0x01/005	Unable to read from drive.
0x03/005	Unable to set drive position pointer.
0x04/3FF	Unable to open access to the drive.
0x08/006	Read data size mismatch.
0x09/3FF	The S.M.A.R.T. Imminent Failure was detected.
0x0A/001	The S.M.A.R.T. command failed and may not be supported.
0x0B/3FF	The self-test routine was aborted.
0x0C/3FF	The self-test routine was interrupted by a hard or soft power reset.
0x0D/3FF	An unknown test error occurred while running the self-test routine.
0x0E/3FF	The self-test has failed and the test element that failed is not known.
0x0F/3FF	The electrical part of the self-test has failed.
0x10/3FF	The servo part of the self-test has failed.
0x11/3FF	The read part of the self-test has failed.
0x12/3FF	Device handling damage has been detected and the self-test has failed.
0x13/015	An unknown self-test result has been received.
0x14/001	Drive does not support the S.M.A.R.T. self-test.
0x15/001	The S.M.A.R.T. Self-test did not complete before the time-out.
0x16/001	The S.M.A.R.T. Error Log was exceeded.
0x17/3FF	Access to the drive was denied.
0x18/019	The temperature result was outside the tolerance.
0x19/3FF	Temperature sensors are not found.
0x1A/098	The S.M.A.R.T. attribute could not be found.
0x1B/098	The S.M.A.R.T. attribute was outside of allowed threshold.
0x1C/3FF	Device is too small to test
0x1D/3FF	Unable to get drive life.
0x1E/080	The drive life is below the threshold.
0x1F/000	The drive was not erased successfully by ZeroData.

Troubleshooting

Error Code(s)	Potential Reason
0x0A/001 0x14/001 0x15/001 0x16/001	The S.M.A.R.T. command has not run to completion. The test is either not supported on the drive and interface, the drive is faulty or the maximum duration parameter is too low.
0x00/001 0x01/005 0x03/005 0x04/3FF 0x08/006 0x17/3FF 0x1C/3FF 0x1F/000	There has been a failure accessing or reading from the drive. The drive may be faulty. If an Antivirus is running, this may be preventing access to the drive.
0x09/3FF 0x0B/3FF 0x0C/3FF 0x0D/3FF 0x0E/3FF 0x0F/3FF 0x10/3FF 0x11/3FF 0x12/3FF 0x13/015 0x15/001	The S.M.A.R.T. self-test may indicate a fault or imminent fault present with the drive. Errors such as aborted tests and power resets may be caused by other programs accessing S.M.A.R.T. functionality while the test is running or the device entering a power saving state. It is recommended that hard drive power down is disabled and no other programs are running for the duration of the test.
0x18/019 0x1B/098 0x1E/080	The retrieved value from the sensor is outside the tolerance. Check the system information for your drive to ensure the correct parameter values are being used.
0x0A/001 0x16/001 0x19/3FF 0x1A/098 0x1D/3FF	The device does not appear to support this test. Check the test descriptions manual for the test requirements.

710X - RAID

Overview

This group checks RAID devices. RAID (Redundant Array of Independent Disks) is a storage technology that combines multiple disk drive components into a single logical unit. This can give advantaged in terms of speed, reliability and cost.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	Linear Read						•	•	•

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
301	1	Duration	0	0	604800	Time to run the test.
	2	Coverage	100	1	100	Percentage of RAID disk to test.
	3	Maximum Errors	1	1	50	Continues to test until the maximum number of errors is reached.
	5	Windows Event Error Count	1000	0	10000	Windows® Event Error count between reads. 0 indicates the Windows® event error will not be read.

Descriptions

301 - Linear Read

Each Read Verify test iteration is one seek and verify. Each iteration, the seek position increases by one MB increment (determined by the range and coverage). The Read Verify test is always done with the seek position increasing each iteration.

Note: This test is only available on drives which have either a capacity greater than 2TB or a sector size greater than 512 bytes.

Test Time: 16 to 20 seconds per 1000 MB. Actual times will vary depending on several factors including: the device read speed, access times, the interface and medium used.

Error Codes

Error Code	Name
0x00/001	The device failed to open
0x01/001	Failed to set RAID hardware Address
0x02/001	Read failure
0x03/006	Read size mismatch

Troubleshooting

Error Code(s)	Potential Reason
0x00/001 0x01/001 0x02/001 0x03/006	The device may be faulty or another program may be limiting access to the device. Check the operating system drivers are up to date and any associated RAID card.

720X - Touch screen

Overview

This group is for testing Touch screens.

A touch screen is an electronic visual display that can detect the presence and location of a touch within the display area. The term generally refers to touching the display of the device with a finger or hand. Touch screens can also sense other passive objects, such as a stylus.

Note: All the tests within the Touch screen group are interactive as user interaction is required.

Note: In Windows® 8.1 the "Touch and Swipe" features may interrupt testing during the Grid and Point tests. The Charm bar shown by swiping from the right has been disabled for the duration of these tests. As per all tests, it is recommended that no other applications or windows are open while running these tests to prevent the Windows® Application List swipe functionality from showing.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	Pen Grid	•					•	•	•
302	Pen Axis	•					•	•	•
303	Pen Accuracy	•					•	•	•
304	Touch Multi-Touch	•					•	•	•
305	Touch Ghost-Touch						•	•	•
306	Touch Path Continuity	•					•	•	•
307	Touch Curve Continuity	•					•	•	•
308	Touch Primary Touch	•					•	•	•
309	Touch Width	•					•	•	•
310	Touch Grid	•					•	•	•
311	Touch Axis	•					•	•	•
312	Touch Accuracy	•					•	•	•
313	Touch Gesture	•					•	•	

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
301	1	Time-out	15	1	60	Time-out for touch screen input.
	4	Grid Size	8	3	20	The number of grids in both the X and Y axis.
	6	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs to ensure the user is ready to input.
	9	Confirm Result	FALSE	FALSE	TRUE	Confirm the result before ending the test.
302	1	Time-out	15	1	60	Time-out for touch screen input.
	2	Max Failed Pixels	3	0	100	Max number of failed pixels allowed after test completion.
	5	Line Width	3	1	10	The number of pixels either side of the touched point to highlight.
	6	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs to ensure the user is ready to input.
	9	Confirm Result	FALSE	FALSE	TRUE	Confirm the result before ending the test.
303	1	Time-out	15	1	60	Time-out for touch screen input.
	3	Tolerance	10	5	100	How close in pixels the touch must be to the target.
	6	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs to ensure the user is ready to input.
	9	Confirm Result	FALSE	FALSE	TRUE	Confirm the result before ending the test.

Test	Parameter	Name	Default	Min	Max	Note(s)
304	1	Time-out	15	1	60	Time-out for touch screen input.
	6	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs to ensure the user is ready to input.
	7	Expected Touches	0	0	50	Number of touch points required to pass. If set to 0, the operator will be asked to confirm the count.
	9	Confirm Result	FALSE	FALSE	TRUE	Confirm the result before ending the test.
305	1	Time-out	30	1	60	Time-out for touch screen input.
	6	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs to ensure the user is ready to input.
	9	Confirm Result	FALSE	FALSE	TRUE	Confirm the result before ending the test.
306	1	Time-out	15	1	60	Time-out for touch screen input.
	6	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs to ensure the user is ready to input.
	9	Confirm Result	FALSE	FALSE	TRUE	Confirm the result before ending the test.
307	1	Time-out	15	1	60	Time-out for touch screen input.
	6	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs to ensure the user is ready to input.
	9	Confirm Result	FALSE	FALSE	TRUE	Confirm the result before ending the test.

Test	Parameter	Name	Default	Min	Max	Note(s)
308	1	Time-out	15	1	60	Time-out for touch screen input.
	6	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs to ensure the user is ready to input.
	9	Confirm Result	FALSE	FALSE	TRUE	Confirm the result before ending the test.
309	1	Time-out	15	1	60	Time-out for touch screen input.
	6	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs to ensure the user is ready to input.
	8	Minimum Size Difference	30	1	100	Minimum pixel difference between finger and thumb expected. This is in a single dimension and will be multiplied for an area difference.
	9	Confirm Result	FALSE	FALSE	TRUE	Confirm the result before ending the test.
310	1	Time-out	15	1	60	Time-out for touch screen input.
	4	Grid Size	6	3	20	The number of grids in both the X and Y axis.
	6	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs to ensure the user is ready to input.
	9	Confirm Result	FALSE	FALSE	TRUE	Confirm the result before ending the test.

Test	Parameter	Name	Default	Min	Max	Note(s)
311	1	Time-out	15	1	60	Time-out for touch screen input.
	2	Max Failed Pixels	0	0	100	Max number of failed pixels allowed after test completion.
	6	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs to ensure the user is ready to input.
	9	Confirm Result	FALSE	FALSE	TRUE	Confirm the result before ending the test.
312	1	Time-out	15	1	60	Time-out for touch screen input.
	3	Tolerance	20	5	100	How close in pixels the touch must be to the target.
	6	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs to ensure the user is ready to input.
	9	Confirm Result	FALSE	FALSE	TRUE	Confirm the result before ending the test.
313	1	Time-out	15	1	60	Time-out for touch screen input.
	6	Display Initial Test Message	FALSE	FALSE	TRUE	Specifies whether or not to display a test dialogue box before the test runs to ensure the user is ready to input.
	9	Confirm Result	FALSE	FALSE	TRUE	Confirm the result before ending the test.

Descriptions

301 - Pen Grid

The Quick grid test fills the screen with a grid of sectors to test. Each sector needs to be touched to pass the test.

Note: This test is configured for the use with touch screens with pens.

Test Time: Dependent on user input.

302 - Pen Axis

This test will test the whole of the screen. By tracing a line diagonally across the screen, every pixel on the X and Y axis will be tested.

Note: This test is configured for the use with touch screens with pens.

Test Time: Dependent on user input.

303 - Pen Accuracy

The Pointing Accuracy test is designed to test the accuracy and calibration of the touch device. A series of targets will be shown that should be touched. If the touch detected is outside the tolerance then the test will fail.

Note: This test is configured for the use with touch screens with pens.

Test Time: Dependent on user input.

304 - Touch Multi-Touch

The Multi-touch test is designed to test the touch screen capability to support multiple touch points. For the test duration the maximum number of active touch points is counted. The test will pass if the required number of touch points are counted before the end of the duration.

Test Time: Dependent on test parameter.

305 - Touch Ghost-Touch

The Ghost-touch test is designed to detect miss detections and ghost touches on the touch device. If any touch is detected during the test duration, the test will fail.

Test Time: Dependent on test parameter.

306 - Touch Path Continuity

The Path Continuity test will trace the path of touch screen presses, highlighting in a different colour each of the paths. This test will show an interrupted path indicating intermittent tracking issues.

Test Time: Dependent on test parameter.

307 - Touch Curve Continuity

The Curve Continuity test will trace the path of touch screen presses with curves of different sizes shown on screen to trace. This test will show allow the operator to see any axis sticking or slipping issues during the draw.

Test Time: Dependent on test parameter.

308 - Touch Primary Touch

The Primary Touch test will check that the touch screen supports primary and secondary touch points. This functionality is important for intuitive operation and gestures within windows.

Test Time: Dependent on test parameter.

309 - Touch Width

The Touch Width test will check that the touch screen is able to detect contact size differences between the finger and thumb.

Test Time: Dependent on test parameter.

310 - Touch Grid

The Quick grid test fills the screen with a grid of sectors to test. Each sector needs to be touched to pass the test.

Note: This test is configured for the use with touch screens and a stylus or pen.

Test Time: Dependent on test parameter.

311 - Touch Axis

This test will test the whole of the screen. By tracing a line diagonally across the screen, every pixel on the X and Y axis will be tested.

Note: This test is configured for the use with touch screens and a stylus or pen.

Test Time: Dependent on test parameter.

312 - Touch Accuracy

The Pointing Accuracy test is designed to test the accuracy and calibration of the touch device. A series of targets will be shown that should be touched. If the touch detected is outside the tolerance then the test will fail.

Note: This test is configured for the use with touch screens and a stylus or pen.

Test Time: Dependent on test parameter.

313 - Touch Gesture

The Gesture test is designed to test the ability for the touch screen and Operating System to detect gestures.

Test Time: Dependent on test parameter.

Error Codes

Error Code	Name
0x00/001	Failed to create the full screen test window.
0x01/3FF	The test has completed without all parts of the test having passed successfully.
0x02/012	The touch was detected outside the tolerance area.
0x03/3FF	A time-out occurred before the Operator completed the test.
0x04/3FF	The Operator has failed the test.
0x05/3FF	The touch input has no size associated.
0x06/3FF	The primary touch point was lost.
0x07/3FF	The primary touch point was detected unexpectedly.
0x08/3FF	The required touch screen inputs were not detected.
0x09/3FF	Unable to configure gesture support.

Troubleshooting

Error Code(s)	Potential Reason
0x00/001	The test window could not be created. This is most likely caused by a graphics hardware or operating system fault.
0x01/3FF 0x02/012 0x03/3FF 0x04/3FF 0x05/3FF 0x06/3FF 0x07/3FF 0x08/3FF 0x09/3FF	The test has failed. This could be due to a time-out in touch screen input, operator error, not calibrated or faulty touch device.

750X - Compass

Overview

The Compass sensor provides the system with a simple orientation in relation to the magnetic field of Earth. This is often used in mobile devices to allow north to be located so that digital maps can be auto rotated depending on the physical orientation of the device.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	Core Recognition							•	
302	Quick Status							•	
303	Direction	•			•			•	
304	Noise Test				•			•	

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
303	1	Orientation Angle	0	0	359	Angle (in degrees) to north.
	2	Time-out	30	0	300	Test time-out.
	3	Tolerance	3	3	100	Angle tolerance.
	4	Calibration Prefix	TRUE	FALSE	TRUE	Specifies whether or not to display a pre-calibration message before running the interactive test.
304	2	Time-out	30	10	300	Test time-out.
	3	Compass Sample Size	500	500	10000	Compass direction data samples for noise testing
	4	Compass cluster Size	20	20	500	Compass direction data cluster size for noise testing

Descriptions

301 - Core Recognition

The Core Recognition test checks the compass to ensure it is connected and detected properly.

Test Time: 1 Second.

302 - Quick Status

The Quick Status test checks the status of the compass to ensure that it is fully functional.

Test Time: 1 Second.

303 - Direction

The Direction test checks the orientation within a compass sensor. The test can be executed either interactively or non interactively. If the test parameter is set to zero, the operator is requested to rotate the device towards true north.

If the parameter is non zero, the test will be non interactive where the user is expected to enter the rotation of the device in degrees.

It is important that this test be executed ensuring the device resides on a planar surface, since compensation for device rotation is not added during this test. Further, the device should be kept away from any known ferrous material such as permanent magnets since they will affect the output of the electronic compass sensor.

A Pre-calibration sequence maybe necessary depending on the system. This will involve rotating the system, holding the system in all available planes for a few seconds and making a 'figure of eight'. Failure to do this may result in an incorrect result.

Note: The compass reads true north not magnetic north and any errors in declination should be taken into account as appropriate.

Test Time: 1 Second for the non-interactive test, and the time depends on the time-out parameter for the interactive test.

304 - Noise Test

This test checks noise in direction measurement of the compass sensor, If noise is within the threshold, this test will return success.

Error Codes

Error Code	Name
0x00/3FF	The sensor was not found.
0x01/3FF	The sensor failed to start.
0x02/3FF	Access to the sensor was denied.
0x03/3FF	The sensor has encountered an error.
0x04/097	The sensor is in an unknown state.
0x05/3FF	The Operator chose to fail the test.
0x06/001	Unable to create test window.
0x07/3FF	The Operator did not respond within the time-out.
0x08/3FF	The test timed out awaiting user interaction.
0x09/3FF	Unable to set rotation.
0x0A/3FF	The sensor heading is outside of the tolerance
0x0B/3FF	Test threshold for the test failure.

Troubleshooting

Error Code(s)	Potential Reason
0x00/3FF 0x01/3FF 0x02/3FF 0x03/3FF 0x04/097 0x0B/3FF	The sensor was not detected. This could be caused by faulty drivers or a loose connection.
0x05/3FF 0x07/3FF	The interactive test failed since the user cancelled the test or not responded.
0x06/001 0x08/3FF	The interactive window creation has failed or timed out. If it has failed it is most likely an operating system issue.
0x09/3FF	The interactive test requires rotation to be disabled. Check the overall system settings.
0x0A/3FF	The heading from the sensor is outside of the tolerance for the test. This may be caused by a faulty sensor, issue reading the heading or an incorrect test parameter. The sensor may also require calibration or may be experiencing interference from nearby ferrous metals or magnets.

760X - Ambient Light

Overview

The Ambient Light sensor is a sensor used to detect the amount of light in the environment it operates in. This sensor is most commonly used for portable devices to adjust the screen brightness as required to make the most of the battery life.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	Core Recognition							•	
302	Quick Status							•	
303	Ambient Light Level	•			•			•	

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
303	1	Time-out	30	0	300	Test time-out parameter for operator interaction.
	2	Minimum luminous intensity level	200	0	65536	Minimum luminous flux level in order to achieve the required test state.

Descriptions

301 - Core Recognition

The Core Recognition test checks the light sensor to ensure it is connected and detected properly.

Test Time: 1 Second.

302 - Quick Status

The Quick Status test checks the status of the light sensor to ensure that it is fully functional.

Test Time: 1 Second.

303 - Ambient Light Level

This test will check the amount of light detected by the ambient light sensor of a system. The Operator is required to cover and uncover the ambient light sensor, where the test will read a significant amount of change of light within the specified time-out. The ambient light sensor is available in most tablet devices located on the front side or directly attached to the front facing camera. In folding systems the sensor might be located towards the bottom side.

Test Time: Depends on the time-out parameter specified by the operator.

Error Codes

Error Code	Name
0x00/3FF	The sensor was not found.
0x01/3FF	The sensor failed to start.
0x02/3FF	Access to the sensor was denied.
0x03/3FF	The sensor has encountered an error.
0x04/097	The sensor is in an unknown state.
0x05/3FF	The Operator chose to fail the test.
0x06/001	Unable to create test window.
0x07/3FF	The test timed out.
0x08/3FF	Required files to perform the test are missing from the diagnostic directory.

Troubleshooting

Error Code(s)	Potential Reason
0x00/3FF 0x01/3FF 0x02/3FF 0x03/3FF 0x04/097	The sensor was not detected. This could be caused by faulty drivers or a loose connection.
0x06/001 0x07/3FF	Creation of the interactive window failed or the test timed out. Most likely an operating system related error.
0x05/3FF	The interactive test failed since the operator cancelled the test. More information should be requested from the operator.
0x08/3FF	Required files to perform the test are missing from the diagnostic directory. Please check your deliverable to ensure all files are present.

780X - NVMe Drives

Overview

Non-Volatile Memory Host Controller Interface Specification (NVMHCI) is a logical device interface specification for accessing non-volatile storage media attached via PCI Express (PCIe) bus. "NVM" stands for "non-volatile memory", which is commonly flash memory that comes in the form of solid-state drives (SSDs). NVM Express (NVMe), as a logical device interface, has been designed to capitalize on the low latency and internal parallelism of flash-based storage devices, mirroring the parallelism of contemporary CPUs, platforms and applications.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	Linear Read						•	•	•
302	Random Read						•	•	•
303	S.M.A.R.T. Failure						•	•	•
304	Idle Temperature						•	•	•
305	Instantaneous Temperature						•	•	•
306	Intelligent NVM Scan						•	•	•
307	ZeroData Disk Erase Test						•	•	•

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
301	1	Duration	0	0	604800	Time to run the test for in seconds, maximum 1 week.
	2	Coverage	100	1	100	Percentage of the drive to test.
	3	Windows Event Error Count	1000	0	10000	Windows® Event Error count between reads. 0 indicates the Windows® event error will not be read. The smaller the number then the bigger the impact on test speed.
302	1	Duration	60	1	604800	Time to run the test for in seconds, maximum 1 week.
	3	Windows Event Error Count	1000	0	10000	Windows® Event Error count between reads. 0 indicates the Windows® event error will not be read. The smaller the number then the bigger the impact on test speed.
303	4	Check Read Only State	1	0	1	Check the S.M.A.R.T. drive read only status.
	5	Maximum Data Integrity Errors	0	0	5000	S.M.A.R.T. data integrity error threshold.
	6	Life Threshold	90	0	100	S.M.A.R.T. drive life threshold.
304	1	Duration	30	0	604800	Time to run the test for in seconds, maximum 1 week.
	8	Maximum Temperature	70	0	200	Maximum Temperature. (Celsius)
	9	Pre-Test Delay	5	0	604800	Time to wait before starting the test.
305	8	Maximum Temperature	70	0	200	Maximum Temperature. (Celsius)
306	10	Intelligent NVM Scan Speed	1	1	3	Specifies the speed setting for the intelligent scan test, (3 is fastest)

301 - Linear Read

Exercises a drive's read capability using linear (incrementally increasing) read addresses. Success or failure of each read is monitored. The Windows event log can be monitored to fail the test if any drive errors occur during testing.

302 - Random Read

Exercises a drive's read capability using pseudo-random read addresses (these are randomly generated using a fixed computational process). Success or failure of each read is monitored. The Windows event log can be monitored to fail the test if any drive errors occur during testing.

303 - S.M.A.R.T. Failure

This test checks the S.M.A.R.T. critical failure flags and the drive life and will fail if any critical failures are detected or any other error states are outside of tolerances.

304 - Idle Temperature

This test checks the temperature reading of the Hard Drive against the minimum and maximum test parameters. This test is designed to be run prior to testing the Hard Drive and will take temperature readings over the set duration and will fail if any readings are outside of tolerances.

Note: Not all hard drives have temperature sensors. If no sensor can be found the test will return not available.

Test Time: Dependent on test parameter

305 - Instantaneous Temperature

This test checks the temperature reading of the Hard Drive against the minimum and maximum test parameters. This test is designed to be run after tests have been run and will return not available if no tests have been run within the configured time period.

Note: Not all hard drives have temperature sensors. If no sensor can be found the test will return not available.

Test Time: 1 Second

306 - Intelligent NVM Scan

The Intelligent Scan algorithm is a unique alternative to traditional Linear Read testing that provides a big time saving benefit when scanning large media for issues such as bad sectors, with little to no loss of test accuracy.

Test Time: Dependent on media size and data

307 - ZeroData Disk Erase Test

The test checks whether storage media was successfully erased by ZeroData erase utility.

Error Codes

Error Code	Name
0x00/001	Unable to read drive information.
0x01/005	Unable to read from drive.
0x02/005	Unable to set drive position pointer.
0x03/3FF	Unable to open access to the drive.
0x04/006	Read data size mismatch.
0x05/3FF	The NVMe drive does not support S.M.A.R.T.
0x06/3FF	Unable to get S.M.A.R.T. information.
0x07/080	S.M.A.R.T. estimated life outside of tolerance.
0x08/080	S.M.A.R.T. data integrity errors outside of tolerance.
0x09/3FF	S.M.A.R.T. NVMe reliability failure detected.
0x0A/3FF	S.M.A.R.T. volatile memory failure detected.
0x0B/080	S.M.A.R.T. drive capacity failure detected.
0x0C/3FF	S.M.A.R.T. temperature failure detected.
0x0D/3FF	S.M.A.R.T. drive read only state detected.
0x0E/019	The temperature result was outside the tolerance.
0x0F/3FF	Temperature sensors are not found.
0x10/3FF	Drive size is smaller than the minimum size required to run this test.
0x11/3FF	Drive was not successfully erased by ZeroData.

Troubleshooting

Error Code(s)	Potential Reason
0x05/3FF 0x06/3FF 0x07/080 0x08/080 0x09/3FF 0x0A/3FF 0x0B/080 0x0C/3FF 0x0D/3FF 0x11/3FF	A S.M.A.R.T. failure has been detected. This may be caused by a temporary problem such as overheating or lack of spare disk space, or could be an indication of a imminently failing drive.
0x00/001 0x01/005 0x02/005 0x03/3FF 0x04/006 0x10/3FF	There has been a failure accessing or reading from the drive. The drive may be faulty.
0x0E/019	The retrieved value from the sensor is outside the tolerance. Check the system information for your drive to ensure the correct parameter values are being used.
0x05/3FF 0x06/3FF 0x0F/3FF	The device does not appear to support this test. Check the test descriptions manual for the test requirements.

800X - Server

Overview

This group contains tests for dedicated servers using the IPMI functionality provided by the server's firmware. If you use the Supermicro IPMI tool application, this should be placed into the group's extra directory in the IPMI subdirectory and called IPMITool.exe

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	IPMI System Event Log						•	•	•
302	IPMI Health						•	•	•
303	IPMI Sensor						•	•	•
304	IPMI Alarm						•	•	•
305	Temperature Sensor						•	•	•
306	Fan Sensor						•	•	•
307	Voltage Sensor						•	•	•
308	Power Sensor						•	•	•
309	Constant Sensor						•	•	•

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
303	1	Ignore Unused Faults	0	0	1	Ignore drive faults if no drive is present.
305	2	Sensor Name	"Temp_"	1	255	Sensor Name.
	3	Partial Name	TRUE	FALSE	TRUE	Allow partial sensor name.
	4	Fail If Missing	FALSE	FALSE	TRUE	Fail if sensor not found.
	5	Minimum Threshold	5	0	255	Minimum sensor value. 0 to ignore.
	6	Maximum Threshold	90	0	255	Maximum sensor value. 0 to ignore.
	9	All Partial Matches	TRUE	FALSE	TRUE	Test all sensors that match the partial sensor name.
306	2	Sensor Name	"Fan_SYS"	1	255	Sensor Name.
	3	Partial Name	TRUE	FALSE	TRUE	Allow partial sensor name.
	4	Fail If Missing	FALSE	FALSE	TRUE	Fail if sensor not found.
	5	Minimum Threshold	200	0	10000	Minimum sensor value. 0 to ignore.
	6	Maximum Threshold	0	0	10000	Maximum sensor value. 0 to ignore.
	9	All Partial Matches	TRUE	FALSE	TRUE	Test all sensors that match the partial sensor name.
307	2	Sensor Name	"VOLT_P3V3"	1	255	Sensor Name.
	3	Partial Name	TRUE	FALSE	TRUE	Allow partial sensor name.
	4	Fail If Missing	FALSE	FALSE	TRUE	Fail if sensor not found.
	5	Minimum Threshold	"3.0"	1	5	Minimum sensor value. 0 to ignore.
	6	Maximum Threshold	"4.0"	1	5	Maximum sensor value. 0 to ignore.
	9	All Partial Matches	TRUE	FALSE	TRUE	Test all sensors that match the partial sensor name.

Test	Parameter	Name	Default	Min	Max	Note(s)
308	2	Sensor Name	"POWER_CPU"	1	255	Sensor Name.
	3	Partial Name	TRUE	FALSE	TRUE	Allow partial sensor name.
	4	Fail If Missing	FALSE	FALSE	TRUE	Fail if sensor not found.
	5	Minimum Threshold	"10"	1	5	Minimum sensor value. 0 to ignore.
	6	Maximum Threshold	"200"	1	5	Maximum sensor value. 0 to ignore.
	9	All Partial Matches	TRUE	FALSE	TRUE	Test all sensors that match the partial sensor name.
309	2	Sensor Name	"PSU Redundancy"	1	255	Sensor Name.
	3	Partial Name	FALSE	FALSE	TRUE	Allow partial sensor name.
	4	Fail If Missing	FALSE	FALSE	TRUE	Fail if sensor not found.
	7	Sensor Value	"Present"	0	255	Expected sensor value. empty to ignore.
	8	Partial Value	TRUE	FALSE	TRUE	Allow partial sensor value.
	9	All Partial Matches	FALSE	FALSE	TRUE	Test all sensors that match the partial sensor name.

Descriptions

301 - IPMI System Event Log

This test will check a server's System Event Log using the Intelligent Platform Management Interface, if supported. If any major severity event logs are found, these will be reported and the test will fail.

Test Time: 1 second.

302 - IPMI Health

This test will check a server's health Log using the Intelligent Platform Management Interface, if supported. If any health failures are found, these will be reported and the test will fail.

Test Time: 1 second.

303 - IPMI Sensor

This test will check a server's sensor Log using the Intelligent Platform Management Interface, if supported. If any sensors detect a fault, these will be reported and the test will fail.

Test Time: 1 second.

304 - IPMI Alarm

This test will check a server's alarm states using the Intelligent Platform Management Interface, if supported. If any active alarms are detected, these will be reported and the test will fail.

Test Time: 1 second.

305 - Temperature Sensor

This test will check the server's temperature sensors. The sensor should be configured and can optionally fail if the sensor is not found.

Test Time: 1 second.

306 - Fan Sensor

This test will check the server's fan sensors. The sensor should be configured and can optionally fail if the sensor is not found.

Test Time: 1 second.

307 - Voltage Sensor

This test will check the server's voltage sensors. The sensor should be configured and can optionally fail if the sensor is not found.

Test Time: 1 second.

308 - Power Sensor

This test will check the server's power readings. The sensor should be configured and can optionally fail if the sensor is not found.

Test Time: 1 second.

309 - Constant Sensor

This test will check the server's sensor readings. The sensor should be configured and can optionally fail if the sensor is not found.

Test Time: 1 second.

Error Codes

Error Code	Name
0x00/3FF	The IPMI program was not found.
0x01/3FF	Failed to start the IPMI program.
0x02/3FF	Unable to retrieve information from BMC.
0x03/3FF	A failure was found in the health check.
0x04/3FF	The health check reports that the self-test has failed.
0x05/3FF	A Major error was found in the System Event Log.
0x06/3FF	A Critical error was found in the System Event Log.
0x07/3FF	A failed sensor reading was found in the sensor list.
0x08/3FF	A active alarm was found.
0x09/3FF	The configured sensor was not found.
0x0A/3FF	The sensor reading was below the minimum threshold.
0x0B/3FF	The sensor reading was above the maximum threshold.
0x0C/3FF	The sensor reading did not match.

Troubleshooting

Error Code(s)	Potential Reason
0x00/3FF 0x01/3FF 0x02/3FF	The IPMI process was unable to run, check that the extra directory is populated and that IPMI commands are supported.
0x03/3FF 0x04/3FF 0x05/3FF 0x06/3FF 0x07/3FF 0x08/3FF 0x09/3FF	A failure was found, check the BMC and result log for more information.
0x09/3FF 0x0A/3FF 0x0B/3FF 0x0C/3FF	A failure was found with the sensors configured, double check the sensor readings in system information or the parameters used.

810X - Trusted Platform Module

Overview

This group is used for testing the Trusted Platform Module (TPM) of the system. The TPM is a chip providing functionality to uniquely and securely identify the system.

Tests

Test	Name	I	E	M	T	B	Windows Vista®	Windows® 10	Windows® PE
301	TPM Presence						•	•	•
302	TPM Self						•	•	•
303	TPM Version						•	•	•

Parameters

Test	Parameter	Name	Default	Min	Max	Note(s)
303	1	Minimum Version	"1.2"	1	100	Minimum TPM Version to pass.

Descriptions

301 - TPM Presence

TPM device presence test. This tests checks supported TPM specification to indirectly test whether a device is present. Any device present will adhere to a specific TPM specifications. This test checks the supported specification and confirms a device is present a working.

Note: Multiple components are tested and could fail with the test therefore Information on the error is always be the last component to fail.

302 - TPM Self

This test runs vendor supplied self test on TPM device, a vendor supplied self test is a combined set of basic tests which check if TPM device is working properly and able to produce random and keys.

Note:

Test Time: Dependant on the re-power delay and the powered down devices attached to the system.

303 - TPM Version

TPM version test. This test checks the TPM version against the parameter set and will pass if the TPM version matches or is above the set parameter.

Error Codes

Error Code	Name
0x01/008	General error executing the test.
0x05/001	Vendor Self test failed on the TPM device.
0x06/001	Failed to access TPM device. Either driver or TPM device does not support this method.
0x07/001	WMI class failure, either driver is not installed or device is missing or malfunctioning.
0x08/001	Presence test failed on the TPM device. no supported specification was found.
0x09/080	The TPM version is below the test parameter.

Troubleshooting

Error Code(s)	Potential Reason
0x01/008 0x05/001 0x06/001 0x07/001 0x08/001 0x09/080	There has been a general error while executing test. The error code will give more information on the device that has failed during the test. To diagnose this issue the test can be run with the failing component excluded, and specific tests for the failing component can be run from the relevant group.

APPENDIX A - XML Configuration Scripts

The following section defines the field values and types for the entities of the XML configuration script relevant for the diagnostic groups. There is the capability to override test parameters and to configure settings for groups outside of test parameters.

Entities

Eurosoft
Main entity of the configuration scripts, which is used as a wrapper for all groups and has no attributes.

Eurosoft_<group ID> (e.g. Eurosoft_7100)
Main entity of the group, which is used as a wrapper and has no attributes.
This should be the 32 bit group ID regardless of the platform.

Default
This entity is used to override default parameters for the tests within the group. This entity has no attributes and contains the Param entity.

Param
This entity defines a single override of a default parameter within the group and has the following attributes:

Attribute	Mandatory	Type	Range
ParamID	Yes	Integer	0 - 4294967295
TestID	Yes	Integer	0 - 4294967295
Value	Yes	String	512 characters

Eurosoft_7100

Main entity of the RAI group, which is used as a wrapper and has no attributes.

Section

The entity, which is used to describe a particular method of handling RAID information and has the following attributes:

Attribute	Mandatory	Type	Range
Name	Yes	String	512 characters
Method	No	String	512 characters

Device

The entity, which is used to describe a device within a section and has the following attributes:

Attribute	Mandatory	Type	Range
UniqueID	Yes	Integer	1-2147483647
VendorID	Yes	Hexadecimal integer	4 hexadecimal digits
DeviceID	Yes	Hexadecimal integer	4 hexadecimal digits
Name	No	String	512 characters

Eurosoft (UK) Ltd
Head Office
3 St Stephens Road
Bournemouth, UK
BH2 6JL
Tel +44 (0)1202 297315
Fax +44 (0)1202 558280
info@eurosoft-uk.com
www.eurosoft-uk.com

Eurosoft (US) Inc.
North American Sales Office
706 Jackson Street
Sioux City, IA 51105, USA
Tel US Toll Free +1 (888) 980-9595
Tel +1 (712) 255 7483
Fax +1 (866) 615-9384
info@eurosoft-us.com
www.eurosoft-us.com