



NETLIST

4GB to 128GB mSATA Half-Slim SSD

Standard form factor SSD module for current and next generation embedded or portable systems.



High density SSD storage in standard JEDEC MO-297A form factor

Netlist's mSATA half-slim module solution delivers all the advantages of Solid State Drive technology. In addition to standard Industrial (-40°C to +85°C) temperature grade SLC configurations, the module is available in MLC Commercial (0°C to +70°C) or MLC Industrial (-40° to +85°C) temperature grade configurations. Based on the standard 22 pin SATA connector, it can be incorporated into any current system compatible with SATA V2.6.

Ideal for embedded and data centric server/storage applications, the new module supports up to 250MBps sequential write speeds and 210MBps sequential read speeds. On board 64MB DDR1 cache helps to increase overall performance while reducing write amplification factor. In addition to volumetric space savings, the module provides significantly lower power consumption with increased reliability over existing rotating media solutions.

Applications

- Virtualization boot loaders
- Boot and operating system loaders
- Industrial embedded storage
- Medical diagnostics equipment
- Inventory management systems
- Barcode readers
- Multimedia storage/playback
- Mobile Computing: Laptops, netbooks, tablets
- Industrial Computers

Key Feature	Benefit
Integrated hardware ECC circuit <ul style="list-style-type: none"> • Corrects up to 48bits in 2kB (BCH) 	Robust Operation and Reliable Data Retention <ul style="list-style-type: none"> • Supports reliable operation if multiple data stream errors occur
Serial ATA Interface <ul style="list-style-type: none"> • Revision 2.6 compliant, NCQ support • Supports SATA I/II data rates of 1.5Gbps / 3.0Gbps • Expanded register support for SATA 48bits addressing mode 	Ease of Implementation <ul style="list-style-type: none"> • Supports legacy 1.5Gbps as well as current 3.0Gbps applications
On board 64MB DDR1 Cache <ul style="list-style-type: none"> • 16bit bus width supporting 320Mbps data rate 	Enhanced Read and Write Performance <ul style="list-style-type: none"> • Sequential Read/Write speeds up to 250MBps/210MBps respectively • Reduced Write Amplification Factor
Flexible NAND Flash Technology Support <ul style="list-style-type: none"> • SLC and MLC Large Block 8kB/page NAND Flash • 1.8V / 3.3V and 3.3V conventional asynchronous FLASH I/O support • 1.8V ONFI 2.0 Flash interface support • 4 channels max, 8/16 bit bus width 	Flexibility and Customization <ul style="list-style-type: none"> • Supports Industrial and Commercial temperature range applications • Performance vs. cost trade-offs • Customizable for different customer requirements
mSATA Half-Slim Form Factor <ul style="list-style-type: none"> • JEDEC MO-297A compliant • 22 pin SATA connector (7 signal / 15 power) 	Compatibility and Ease of Use <ul style="list-style-type: none"> • Plug and play with standard cabling
System Level Functionality <ul style="list-style-type: none"> • SMART command set support • TRIM command support 	Ease of Use and Robust Operation <ul style="list-style-type: none"> • Monitor performance • Perform diagnostics

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Additional Features

- 4GB to 128GB capacity
 - » SLC: 4GB - 32GB
 - » MLC: 16GB - 128GB
- 3.3V operating voltage
- Dynamic and static wear leveling
- Bad block and spare block management
- 28/32/48 bit/2KB ECC
 - » BCH
- Power management
- Industrial temperature range(SLC & MLC)
 - » -40°C to +85°C
- Commercial temperature range(MLC)
 - » 0°C to +70°C
- 32bit microcontroller w/UART, GPIO
- Shock 1500G / 0.5ms
- Vibration 80 – 2000Hz/20G
- RoHS, WHQL, CE/FCC certification
- Acoustic = 0dB
- Windows OS boot feature
- 39.0 x 54.0mm (L x W)

Embedded & Mobile Applications

- Boot & operating system loaders
- Industrial embedded systems
- Medical diagnostics equipment
- Barcode readers
- Multimedia storage/playback
- Mobile computing



MLC NAND Flash

Commercial Temperature Range (0°C to +70°C)

Density	Netlist Part Number
16GB	NLS716GV2C - 6TMHAA214
32GB	NLS732GV2C - 6TMHAA224
64GB	NLS764GV2C - 6TMHAA224
128GB	NLS7128V2C - 6TMHAA244

MLC NAND Flash

Industrial Temperature Range (-40°C to +85°C)

Density	Netlist Part Number
16GB	NLS716GV2I - 6TMHAA214
32GB	NLS732GV2I - 6TMHAA224
64GB	NLS764GV2I - 6TMHAA224
128GB	NLS7128V2I - 6TMHAA244

SLC NAND Flash

Industrial Temperature Range (-40°C to +85°C)

Density	Netlist Part Number
4GB	NLS704GV2I - 6TSHAA114
8GB	NLS708GV2I - 6TSHAA124
16GB	NLS716GV2I - 6TSHAA124
32GB	NLS732GV2I - 6TSHAA124

1. Tested using CrystalDiskMark V3.0.1 (Sequential Read/Write)
2. Actual performance may vary on system configuration, environmental factors, memory capacity utilization, operating system.
3. Sustained Read/Write performance can be affected by many factors such as test benchmarks used, file size NAND configuration, NAND type, and total storage capacity. Higher capacity modules will typically have higher Read/Write performance.

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