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Product fact sheet

Industrial SATA SSD 2.5"

X-200 Series

SATA II - 3.0Gb/s
up to UDMA6 / MDMA2 / PIO4

Standard and industrial temperature grade

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X-200 Series – Industrial SATA Solid State Drive 2.5" 4GByte to 64GByte

Feature summary

- Form factor:
  - 2.5-inch SATA Solid State Drive (SSD)
  - 100.2mm x 70.0mm x 9.0mm
  - Replacement of a standard SATA-compliant Hard Disk Drive
  - 7+15 pin (SATA+power) SATA connector
- Interface:
  - SATA Rev 2.6 – 3Gbit/s (1.5Gbit/s compatible)
- Highly-integrated memory controller
  - max. UDMA6 supported
  - max. PIO mode 4, MDMA2 supported
  - SLC NAND Flash
  - Hardware BCH-code ECC (8 Bit correction per sector for SLC)
  - fix drive configuration
- Low-power CMOS technology
- 5.0V ± 10% power supply (3.3V optional)
- Low Power, less than 500mA
- No mechanical noise
- Wear Leveling: active wear leveling of static and dynamic data
  The wear leveling assures that dynamic data as well as static data is balanced evenly across the memory. With that the maximum write endurance of the device is guaranteed.
- High reliability
  - MTBF > 2,500,000 hours
  - Data reliability: < 1 non-recoverable error per 10^{14} bits read
  - Number of connector insertions/removals: >1,000
- High performance
  - Up to 300MB/s burst transfer rate in SATA II – 3.0Gb/sec
  - Sustained Write performance: up to 95MB/s
  - Sustained Read Performance: up to 120MB/s
- Available densities
  - 4GByte up to 64GByte (SLC NAND Flash)
- S.M.A.R.T., HPA, Security and 48bit feature set
- 2 Temperature ranges
  - Commercial Temperature range 0 ... +70°C
  - Industrial Temperature range -40 ... +85°C
- Life Cycle Management
- Controlled BOM
- RoHS compatible

Table 1: System Performance

System Performance	4GB	8...32GB	64GB	Unit
Data transfer Rate (SATA burst)	3.0 (1.5)	3.0 (1.5)	3.0 (1.5)	Gbit/s
Sustained Read (max. measured)	~110	~120	~105	MB/s
Sustained Write (max. measured)	~47	~95	~90	

1. All values refer to 16GB card with Samsung 4x K9WBGFlash, SSD in UDMA mode 5, SATA 3.0Gbit/s, write/read file sequential.
2. Sustained Speed depends on flash type and number, file size, and burst speed

Table 2: Current consumption(1) at 5V ± 10%

Current Consumption	typical	max	Unit
write (SATA-II/UDMA6)	290	350	mA
Read (SATA-II/UDMA6)	290	350	
Idle	140	160	

1. All values are typical at 25° C and nominal supply voltage and refer to 16GByte CFAST card.

Table 3: Environmental Specifications

Environmental Specifications	Operating	Non Operating
Temperature (commercial)	0 to 70°C	-50 to 100°C
Temperature (industrial)	-40 to 85°C	-50 to 100°C
Humidity (non-condensing)	85% RH 85°C, 1000 hrs (JEDEC JESD22, method A101-B)	

Table 4: Physical Dimensions

Physical Dimensions		Unit
Length	100.20±0.2	mm
Width	69.85±0.2	
Thickness	9.00±0.1	
Weight (typ.)	90	g

Table 5: SSD capacity specification

Capacity	Default_cylinders	Default_heads	Default_sectors _track	Sectors_drive	Total addressable capacity (Byte)
4GB	7,814	16	63	7,876,512	4,032,774,144
8GB	15,628	16	63	15,753,024	8,065,548,288
16GB	16,383*)	16	63	31,506,432	16,131,293,184
32GB	16,383*)	16	63	62,586,880	32,044,482,560
64GB	16,383*)	16	63	125'304'832	64'156'073'984

*) The CHS addressing is limited to about 8GB. Larger drives should be used in LBA mode.

Table 6: System Reliability and Maintenance

MTBF (at 25°C)	> 2,500,000 hours
Data Reliability	< 1 Non-Recoverable Error per 10^{14} bits Read

(1) Dependent on final system qualification data.

For more information on Serial ATA Revision 2.6, please visit Serial ATA International Organization at www.serialata.org

Why Swissbit?

Swissbit strives to create innovative technologies for future market opportunities utilizing a highly skilled in-house product research and development team. Swissbit maintains a marketing edge by continuing to manufacture world-class high quality memory products and providing customers with both high value and low cost of ownership achieved through efficient processes and procedures.