

FLASH AND DRAM SOLUTIONS

for embedded, industrial and military applications

industrial automation | defense electronics | gaming | UAVs | mapping | GPS | surveillance



VIKING
MODULAR SOLUTIONS™
SANMINA-SCI CORPORATION



SATACube³(TM)

Small form factor embedded solid state drive

Delivering High-Capacity Solid State Storage in Space Constrained Applications

SATACube³ is the embedded SATA SSD in an ultra small form factor designed for embedded, industrial and military applications. SATACube³ is the optimum solution for mission critical applications requiring the benefits of high capacity, non-volatile solid state storage in the smallest mechanical footprint available today. SATACube³ comes in BGA solderable and standard uSATA connector packages with available capacities ranging from 25GB to 480GB using SLC or MLC NAND technologies.

- Purge security suite
- Conformal coating (optional)
- Shock resistant mounting points
- 85% the footprint of a 2.5-inch HDD
- Thermal sensor
- EMP resistance and ESD protection
- Industrial temp - extended burn in
- Patented Multi-Chip Packaging (MCP) technology

260 MB/s

3Gb SATA

85% Smaller
Footprint than a
2.5-inch SSD

Bootable

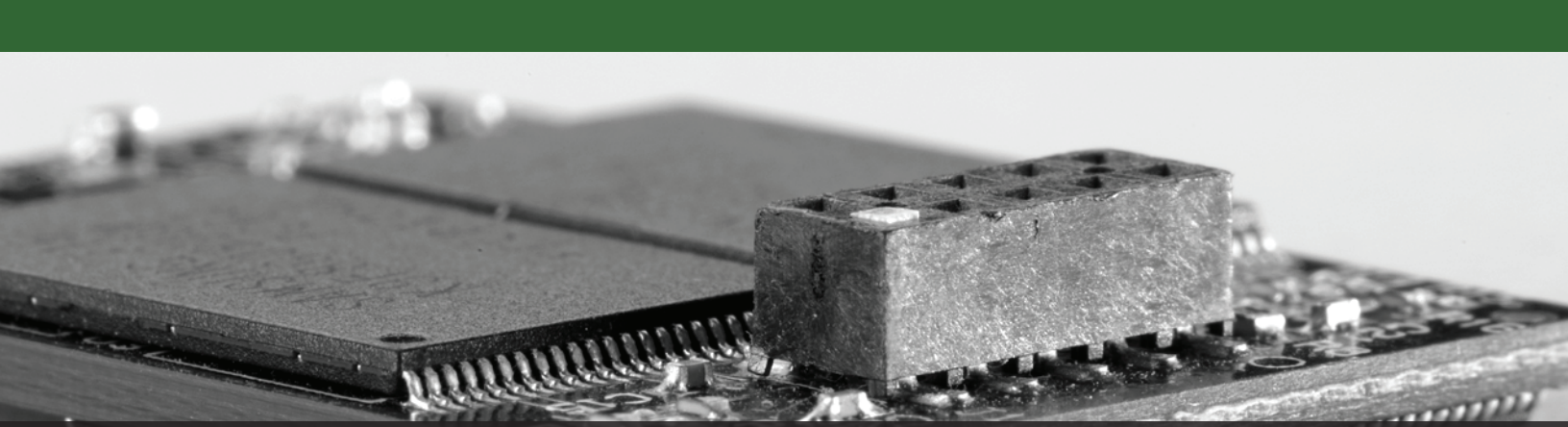
Solderable or
Removable

5 Year Endurance

Specifications

SATACube³

Capacity	SLC	25GB to 200GB
	MLC	50GB to 480GB
Performance	Transfer Speeds	Up to 260 MB/s
	Random IOPS	Up to 30,000 IOPS
	Interface	SATA 3Gb
	Connector	140-pin BGA or 16-pin microSATA (same as 1.8-inch HDD)
Environmental	Operating Temperature	0°C to 70°C or -40°C to 85°C
	Bit Error Rate (BER)	< 1 in 10 ¹⁷ bits read
	Test Standard	MIL-STD-810
Dimensions	Width	31mm
	Length	35.3mm
	Thickness	Varies by density



Embedded Flash

Small form factor flash solutions for embedded applications

Flash Storage in Space Constrained Embedded Applications

SlimSATA and DFC are SWaP(P): size, weight, power and performance, optimized designs tailored directly for the harsh demands of military environments. These ultra small form factors military solutions are enabled with high security level features such as AES-128 encryption and ATA Secure Erase. Other features include:

- Purge security suite
- Built-in AES-128 encryption
- Intelligent write management techniques for optimized endurance
- Military-level environmental testing
- Advanced SMART command support
- EMP resistance and ESD protection
- Performance-throttling to guarantee service life

Small Form Factor

20G Vibration

Solderable or SATA connector

90% Smaller Footprint than a 2.5-inch SSD

Specifications	SlimSATA	Discrete Flash Card	eUSB
Capacity	Up to 115GB	Up to 8GB	Up to 16GB
Sustained Transfer Rate	250 MB/s	20 MB/s	34 MB/s
Interface	SATA	PATA / CF	USB
Dimensions	54mm x 39mm x 4mm	20.4mm x 22.7mm x 3.4mm	26.6mm x 36.9mm x 6.5mm
ECC	Embedded 24-bit ECC	Embedded 8-bit ECC	Embedded 8-bit ECC
Bit Error Rate (BER)	< 1 in 10 ¹⁷ bits read	< 1 in 10 ¹⁴ bits read	< 1 in 10 ¹⁴ bits read
Test Standard	MIL-STD-810	MIL-STD-810	MIL-STD-810
Vibration	16.4g rms 10-2,000 Hz, 3 axes	20G	16.4g rms 10-2,000 Hz
Voltage	3.3V or 5V	3.3V & 5V	3.3V & 5V
Connector	Standard SATA	BGA solderable	USB (2 x 5 header)

High-Performance Embedded Solid State Drives

Engineered for the highest levels of performance and reliability, Viking Modular Element SSDs feature 6Gb SAS or a 6Gb SATA interface and an advanced parallel NAND channel architecture that delivers best-in-class performance for transaction intensive applications.

Element SSDs feature an unparalleled host to NAND write amplification efficiency, for unprecedented endurance. Coupled with patented error detection/correction capabilities and protection against normally catastrophic flash failures, Element SSDs deliver the ideal high-performance storage solution for embedded applications.

60,000 IOPS

6Gb SATA

6Gb SAS

AES-256

Power Fail
Data Security

Element Solid State Drives

2.5-inch and 1.8-inch SSDs for embedded applications

Specifications

Element 1.8-inch

Element 2.5-inch

Capacity	SLC	25GB to 200GB	Up to 400GB
	MLC / eMLC	50GB to 480GB	50GB to 480GB
Performance	Transfer Speeds	520 MB/s	520 MB/s
	Random IOPS	Up to 60,000 IOPS	Up to 60,000 IOPS
	Interface	SATA 3Gb/6Gb	SATA 3Gb/6Gb
Reliability	ECC	55 bit/512 byte	55 bit/512 byte
	Bit Error Rate (BER)	< 1 in 10 ¹⁷ bits read	< 1 in 10 ¹⁷ bits read
Dimensions	Height	54.0mm	69.9mm
	Length	78.5mm	100.2mm
	Thickness	5.0mm	9.5mm

DDR3, DDR2, Non-Volatile Memory, DRAM Stacking Technology

LRDIMM	RDIMM	UDIMM	VLP RDIMM
MiniRDIMM	MiniUDIMM	SOUDIMM	VLP MiniUDIMM
VLP UDIMM	SODIMM	SORDIMM	VLP MiniRDIMM

Viking Modular Solutions offers an extensive portfolio of JEDEC standard and application optimized DRAM modules. Available in multiple form-factors ranging from High Density Load Reduction (LR) DIMMs, to a complete offering of ECC Small Form Factor solutions, including: SODIMM, Mini-DIMM, and VLP MiniDIMMs.

Extended
Temperature Test

Highest Class
Capacity

Zero Down-Time

High-Reliability



DRAM Module Portfolio

High-reliability embedded memory with high-capacity DRAM stacking technology

Enterprise-Level Quality and Service

Viking Modular Solutions takes pride in producing DRAM modules of the highest standards and quality. With two decades of OEM support and service, Viking Modular has carefully developed test engineering and quality of service that has been tailored to deliver best in class DRAM modular solutions to the embedded OEM customer.

Our DRAM packing expertise enables Viking Modular to deliver the most optimized solutions for space constrained, thermally challenging and high density environments. Viking Modular's capabilities have enabled multiple Tier-1 OEMs to deliver maximum system configurations while maintaining the highest level of reliability.

Why Embedded Solutions from Viking Modular

- Advanced packaging expertise
- Patented power fail data protection ensuring advance data integrity
- Best-in-class sequential and random performance
- C-TPAT global supply chain security
- Locked BOM under customer PCN control
- Advanced testing and reliability
- Localized Field Application Engineering for complete pre and post sale technical support
- Two decades of experience and leadership
- Global manufacturing and logistics

Specialization

- | | |
|---|--------------------------------------|
| • High-capacity applications | • Thermally challenging environments |
| • Small size requirements | • Low power consumption |
| • Full spectrum of military compliances | • Long product life support |
| • Enhanced & customized testing | • VMI / Hub programs |

Over two decades of development, innovation and leadership in embedded and DRAM solutions. Viking Modular embedded product portfolio are DoD compliance tested, security ensured, and SWaP(P): *size, weight, and power (+performance)* optimized specifically for the rigorous demands of embedded and military environments.



U.S. Headquarters

20091 Ellipse
Foothill Ranch, CA 92610
Toll Free: +1 800 338 2361
Main: +1 949 643 7255
Fax: +1 949 643 7250

Europe Headquarters

LerchenstraBe 1 D-91710
Gunzenhausen
Germany
+49 2921 981 6463

Japan Headquarters

800 Ichimiyake, Yasu 5202362
Japan

Asia Headquarters

No 2 Chai Chee Drive
Singapore, 109840
+65 6839 8008

For more information on our solutions and technology, please visit us at www.vikingmodular.com
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