Transcend®
EMBEDDED SOLUTIONS

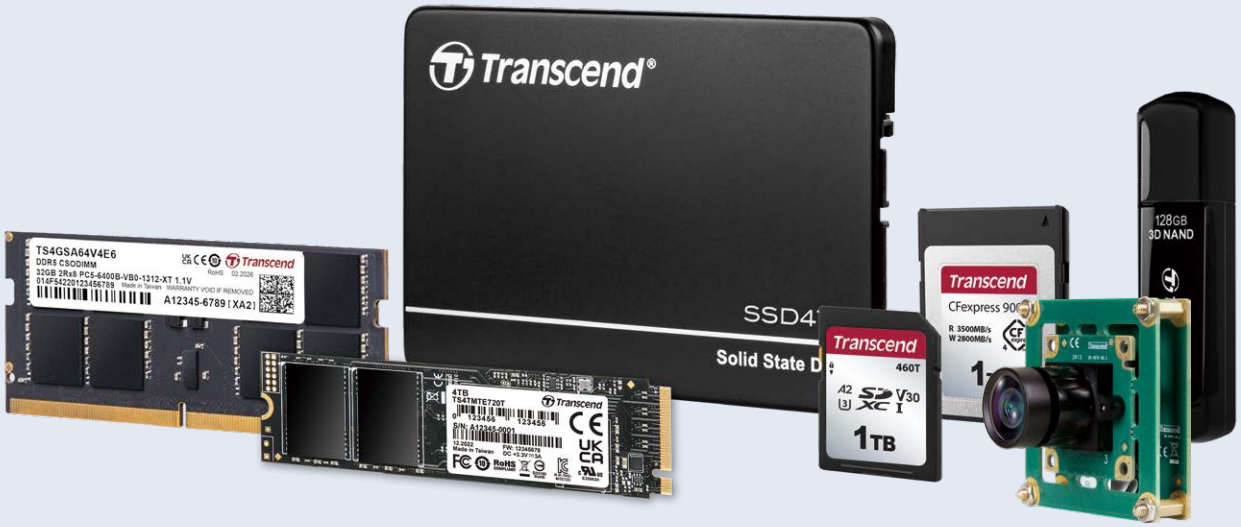
PRODUCT OVERVIEW

Embedded Solutions



DRAM Modules | SSD Solutions | Memory Cards |
Flash Solutions | Camera Modules

Index



About Transcend 01

Our Strengths 02
Applications 03
Solutions & Technologies 04
Software Solutions 06

DRAM Modules 08

Product Highlights 10
DDR5 DIMMs 11
DDR4 DIMMs 13
DDR3 DIMMs 16

SSD Solutions 19

Data Center SSD 23
218-Layer 3D NAND Flash 24
112-Layer 3D NAND Flash 27
MLC NAND Flash 34

Memory Cards 37

SD Cards 39
microSD Cards 40
CFexpress Cards & CompactFlash Cards 41
CFast Cards 42

Flash Solutions 43

USB Flash Drives & USB Flash Modules 45

Camera Modules 46

About Factory 48



About Transcend

35+ Years of Experience

Founded in 1989, Transcend Information Inc. is a leading global supplier of embedded memory products and storage solutions. Transcend has been granted over 140 patents for our award-winning products, developed by our in-house R&D team in close cooperation with our strategic component suppliers.

Global Support

Transcend operates 11 branch offices worldwide, including in Los Angeles, Maryland, Hamburg, Rotterdam, London, Tokyo, Seoul, Shanghai, Beijing, Shenzhen, and Hong Kong. Our headquarters and manufacturing site are both located in Taipei, creating an optimum product supply system with a global reach.

Stability & Reliability

Transcend utilizes selected components from 1st tier suppliers, and leverages advanced technologies such as Corner Bond, Anti-sulfur, Wide Temperature, SLC Mode, etc., to ensure reinforced structure, superior durability, and longer product use life under demanding industrial applications.



Our Strengths

Transcend's embedded storage solutions include SSDs, DRAM modules, memory cards, USB flash drives, and more, all designed to deliver advanced memory and storage technology. Our products can be found in applications across various industries, such as enterprise data servers, automotive, automated manufacturing, 5G networks, AIoT, healthcare, surveillance, and smart retail.

Top Quality Storage Solutions

- Branded chips to ensure the highest quality
- Exclusive software for efficient device management

Facilities & Production Process

- Highly automated production
- Rigorous reliability and environmental testing
- Stringent quality control: IQC, IPQC, FQC, OQC

R&D Expertise

- More than 140 patents
- 80+ person in-house R&D team
- Extensive embedded product development experience

Reliable Supply

- Strategic alliance and direct relationship with top-tier suppliers

Management of Product Life Cycle

- Embedded-grade product lifecycle management
- Fixed BOM management
- In-house ERP system
- Regular roadmap updates

Global Operation & Worldwide Support

- Professional technical support and failure analysis reports
- 12 offices worldwide
- Localized sales and FAE support

Applications

Transcend's embedded solutions are utilized across various industries.



Gaming

- Casino Gaming
- Lottery
- Player Tracking



Automation

- Robot Controllers
- Human Machine Interfaces
- Digital Twin Technology



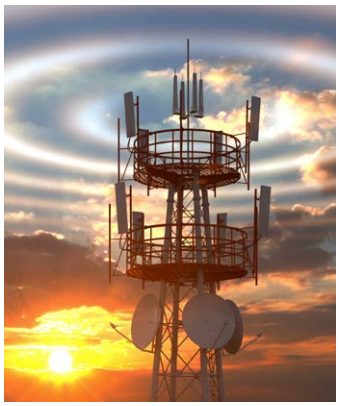
Healthcare

- Medical Tablets & AIO PCs Medical Imaging
- Patient Monitoring



Transportation

- Fleet Management
- Event Recorders
- FSD (Full Self Driving) Auxiliary System



Network & Telecom

- Industrial Switches
- 5G Base Stations
- Network Security Appliances



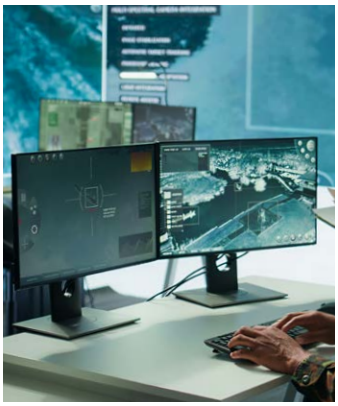
Embedded Computing

- Digital Signage
- Fanless PCs
- Embedded PCs



AIoT

- Edge Computing
- Smart City
- Smart Agriculture



Defense

- Rugged Laptops & Tablets
- Rugged Rackmount Devices

Solutions & Technologies

Transcend utilizes various technologies to optimize the durability, reliability, and stability of our memory and storage devices. We can also provide customized services to adapt our products to your requirements.

DURABILITY



112-layer 3D NAND Flash

112-layer 3D NAND Flash technology delivers higher capacities, performance, endurance, and lower costs, making it an ideal solution for modern storage needs. Transcend's 112-layer 3D NAND SSDs provide high I/O performance and low latency, making them perfect for 5G, automotive, AIoT, and cloud computing applications.



Dynamic Thermal Throttling

Our Dynamic Thermal Throttling technology ensures that our SSDs operate within a safe temperature range, thereby protecting users' data and prolonging the product lifespan. A built-in thermal sensor in the controller constantly monitors the drive temperature, and when the temperature exceeds a safe level, drive speeds are throttled down until a safe temperature is reached.



SLC Mode

SLC Mode SSDs strike a cost-performance balance between different flash types by emulating the behavior of SLC NAND flash. This provides users with SLC-level endurance and performance at a reasonable cost.

SECURITY



TCG Opal Compliance

TCG Opal SEDs (self-encrypting drives) are ideal for industries where data security is of crucial importance. Transcend's Opal-compliant SSDs incorporate hardware-based AES 256-bit encryption; ensuring data is safeguarded starting from the manufacture of the storage device to system installation and management. Furthermore, TCG Opal compliant SSDs do not impact host performance since encryption and decryption are conducted on the drives themselves. Transcend's Opal-compliant SSDs offer sector-specific security, allowing managers to grant different permissions to each user, ensuring compartmentalized data security. The SSDs also feature pre-boot authentication; they can only be booted when the user is verified, preventing unauthorized access.



AES Encryption

The Advanced Encryption Standard (AES) is a FIPS-approved cryptographic algorithm specifically used to protect electronic data. Transcend's SSDs equipped with hardware-based AES provide a comprehensive solution for applications that handle sensitive data or require high data security.

RELIABILITY



Anti-Sulfur Technology

Transcend's anti-sulfur DRAM modules meet the ISA Standard S71.04-2013 level G2 and the ASTM B809-95 standard. Anti-sulfur resistors, which have a protective layer above vulnerable silver alloys, are used exclusively to prevent malfunctions caused by sulfuration.



Wide Temperature

Transcend's products are stringently tested at the component level and at the device level within an extended thermal range. All wide-temperature products are required to pass rigorous tests conducted in a temperature and humidity chamber to ensure reliable performance in temperatures ranging from -40°C to 85°C. Wide-temperature DDR4 and DDR5 memory modules are tested to operate between -40°C to 95°C.



Extended Temperature

Products rated for extended temperatures are designed for reliable operation in temperatures ranging from -20°C to 75°C. Transcend offers this as standard on a wide range of 112-layer 3D NAND SSDs.



Corner Bond & Underfill

Corner Bond / Underfill are technologies used to increase reliability under high thermal stress, high gravitational acceleration and high fatigue cycle applications. By spreading stresses throughout the key components with a mechanical bond, less stress is concentrated on the solder joints. It is widely used in applications where stringent thermal cycling performance and shock resistance are required.



Conformal Coating

Conformal Coating increases protection for Transcend's embedded flash modules and DRAM products against various harsh environmental conditions such as moisture, dust, corrosion, extreme temperature, and chemical contaminants. Acrylic coatings are the most preferred choice for embedded applications due to their excellent moisture and electrical resistance.

STABILITY



Power Loss Protection (PLP) & Power Shield (PS)

Power Loss Protection (PLP) and Power Shield (PS) are two technologies provided by Transcend to prevent internal NAND flash data loss during a sudden power outage. When power is lost, the drive controller will stop accepting new write commands to ensure data integrity. PLP SSDs utilize tantalum capacitors to increase the amount of time the drive controller has to flush data from DRAM into NAND flash. Power Shield technology provides a power loss protection mechanism to Transcend's flash memory cards, USB flash drives, and other portable devices. The technology ensures that the device can complete the ongoing write operation and prevent data corruption or loss due to power interruption.

Embedded Software Solutions

Leverage our embedded software solutions to stand out from the others. See how Transcend can empower your business and boost your growth.

SDK Available
Software Development Kits (SDKs) can be provided to adapt our software to many operating systems.

Software and Hardware Integration
Seamlessly integrate hardware and software for complex applications.

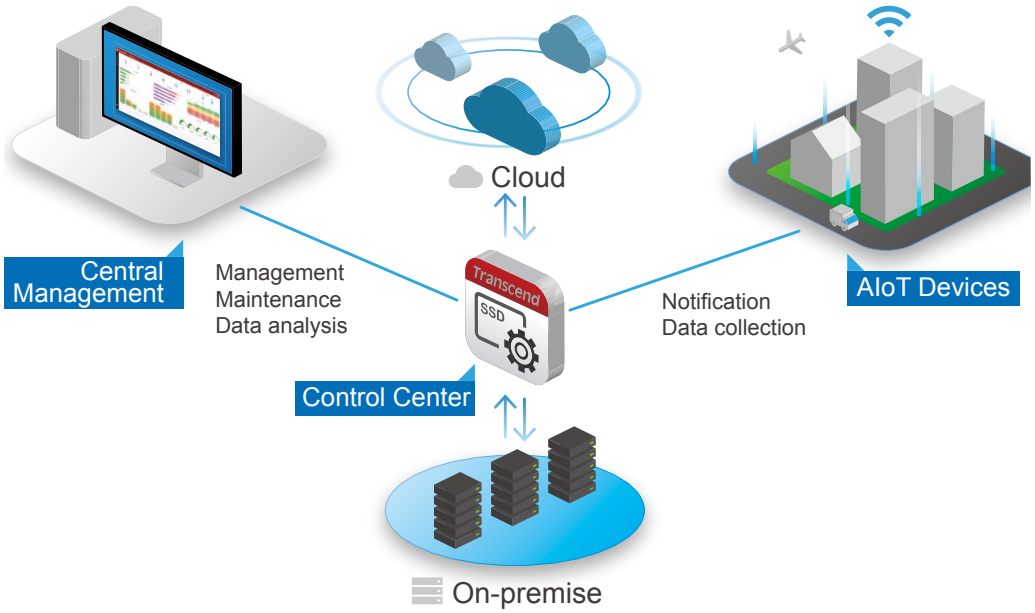
From Edge to Cloud
Work in tandem between the cloud and the edge to achieve utmost flexibility.

Broad Support
Our software solutions build strong foundations for SSDs, DRAM, flash and other devices.

Control Center

Management

Transcend's Control Center allows users to easily manage and monitor multiple storage devices deployed at the edge. Our SaaS solution is platform-agnostic and can be deployed on either public cloud services such as AWS or on private clouds.



Consolidated Information
Offers data analysis and clear information on an intuitive interface to help users make informed decisions.

Remote upgrade & monitoring
Allows for remote monitoring of device health status and firmware updates.

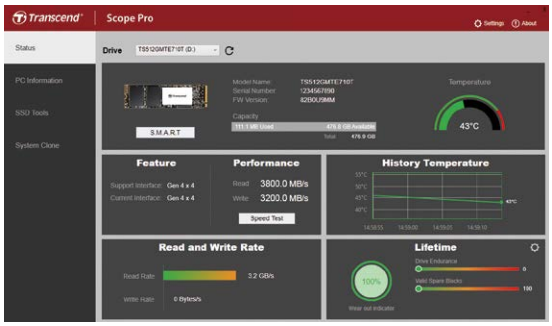
Early Warning System (EWS) & Instant Notices
Detects potential issues and notifies users in real-time, enabling them to take proactive measures.

Scope Pro / Scope Pro CLI

Monitor

Transcend's Scope Pro is a convenient software package suitable for offline embedded systems. It offers useful features such as drive information, S.M.A.R.T. analysis, diagnostic scans, health checks, and system cloning.

*Scope Pro CLI for Linux OS.



Efficient Monitoring

Monitor the health status of devices, including available, used, and total capacity, temperature, endurance, bad blocks, and wear-out indicators.

Optimized Performance

Conduct speed tests and health scans. Rearrange data stored in SSDs or memory cards to optimize performance.

System Clone

Perform a system clone by duplicating the operating system (OS), programs, and user data to a new Transcend SSD.

TCG Opal Toolbox | ATA Security Toolbox | UFD Security Toolbox

Security

Transcend offers a wide range of security toolboxes for use with our embedded solutions to enhance data security.

Utilize the Opal Toolbox to configure passwords, locking ranges, initiate pre-boot authentication (PBA), and revert functions to increase drive security.

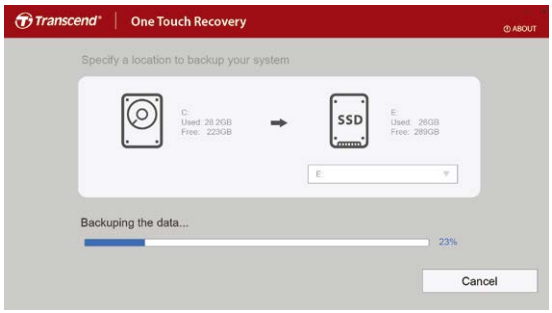
Determine the desired security level and perform lock, unlock, and drive erase functions.

Enable write protect and OTP functions (customized) to increase the security of USB flash drives.

One Touch Recovery

Rescue

One Touch Recovery safeguards digital assets by backing up crucial data to hidden partitions.



Enhanced Efficiency

By backing up data beforehand, One Touch Recovery eliminates the hours spent restoring compromised systems.

Flexible Customization

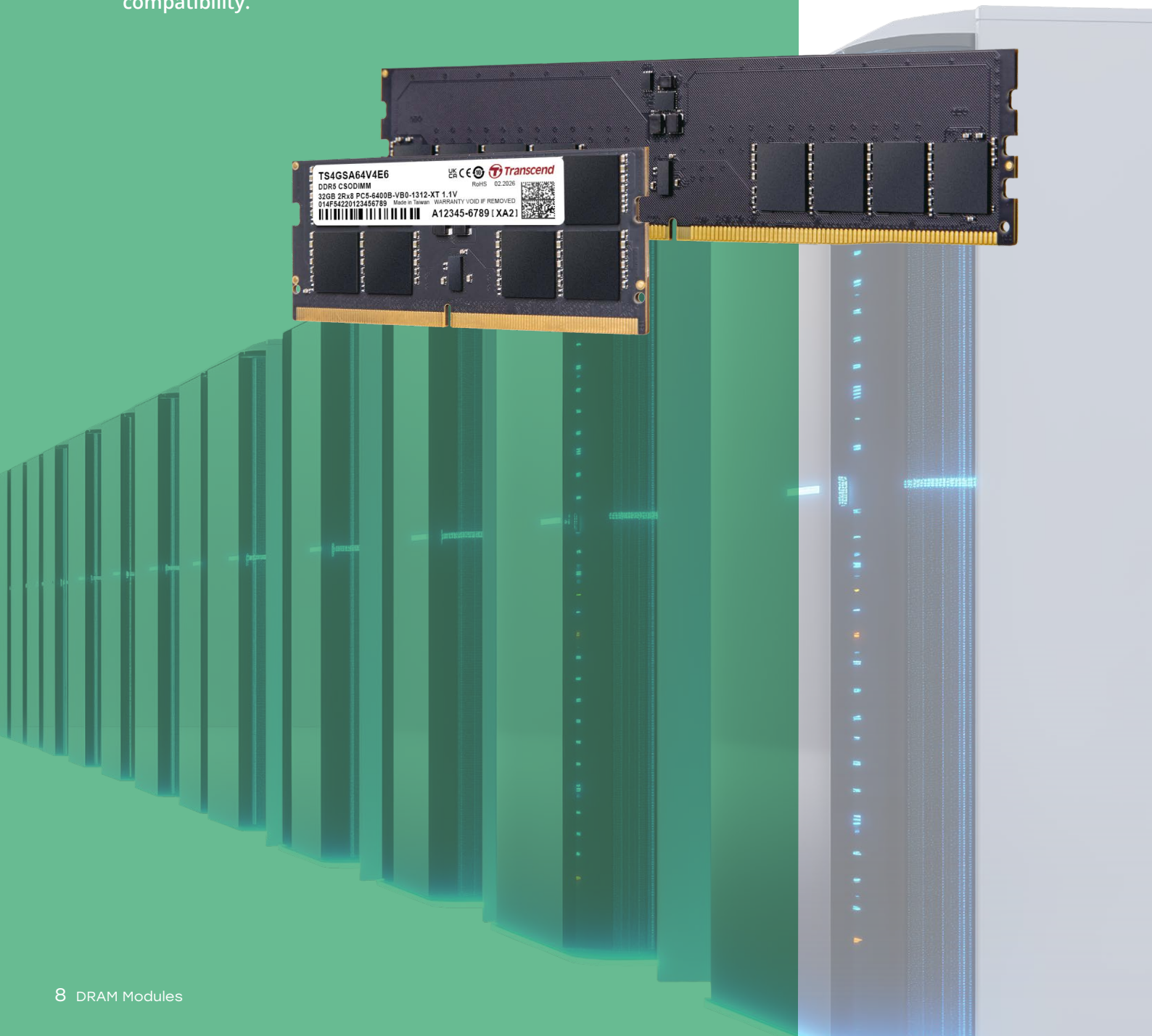
Back up and restore data from user-defined disks. The maximum number of disks is tailored to fit each user's requirements.

Remote Backup & Recovery

Can be operated remotely, allowing users to respond to emergency situations quickly, minimizing downtime and related costs.

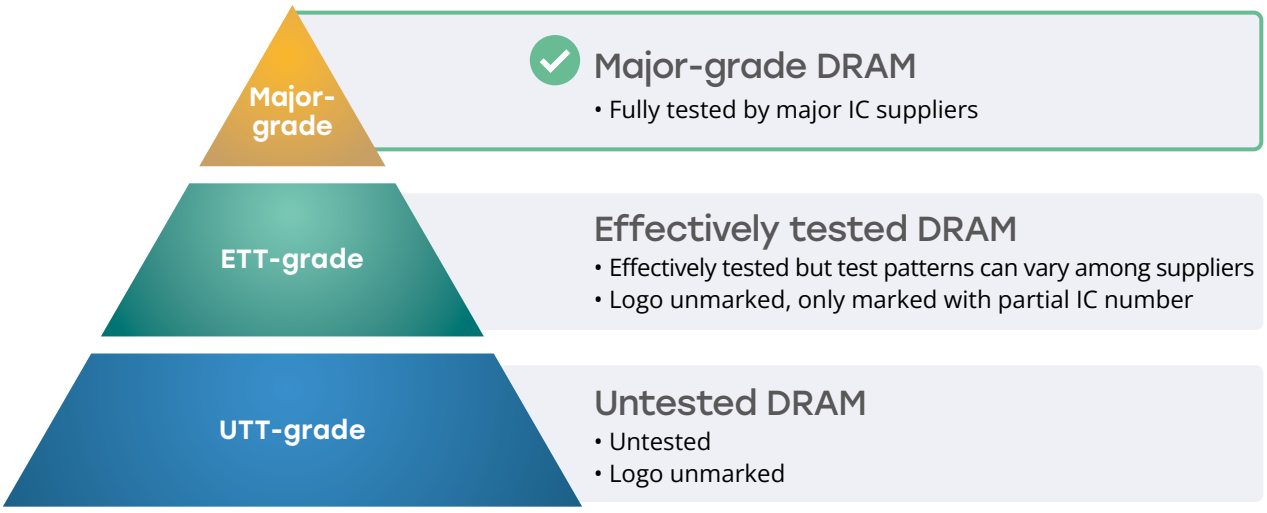
DRAM Modules

Transcend's DRAM modules are offered in a variety of form factors to accommodate different embedded devices used in industrial applications. Each DRAM module is manufactured using only the highest-quality DRAM memory chips and components, and is individually tested to ensure stability and compatibility.



IC Grade

Transcend's industrial-grade DRAM memory modules only utilize major-grade DRAM chips which have undergone the original IC manufacture's in-house testing procedures.



Product Line

Module Type		Speed (MT/s)	Operating Temperature	Capacity
DDR5	CUDIMM / CSODIMM	6400	0°C~85°C	8GB~32GB
	Unbuffered Long-DIMM / Unbuffered SO-DIMM	5600	0°C~85°C / 0°C~95°C / -20°C~95°C / -40°C~95°C	8GB~48GB
	ECC Long-DIMM / ECC SO-DIMM	6400	0°C~85°C	16GB~32GB
		5600	-20°C~95°C / -40°C~95°C	16GB~32GB
	Registered Long-DIMM	6400	0°C~85°C	16GB~32GB
		5600	-20°C~95°C / -40°C~95°C	16GB~32GB
DDR4	Unbuffered Long-DIMM/ Unbuffered SO-DIMM	3200	0°C~85°C / 0°C~95°C / -20°C~ 95°C / -40°C~95°C	4GB~32GB
	ECC Long-DIMM / ECC SO-DIMM	3200	-20°C~ 95°C / -40°C~95°C	4GB~32GB
	Registered Long-DIMM	3200	0°C~95°C / -20°C~95°C / -40°C~95°C	8GB~32GB
DDR3	Unbuffered Long-DIMM / Unbuffered SO-DIMM	1866	0°C~85°C / -40°C~85°C	4GB~8GB
		1600	0°C~85°C / -40°C~85°C	1GB~8GB
	ECC Long-DIMM / ECC SO-DIMM	1600	0°C~85°C / -40°C~85°C	4GB~8GB
	Registered Long-DIMM	1600	0°C~85°C	4GB~8GB

*Transcend offers technology customization options for selected models. Please contact us for more detailed information.

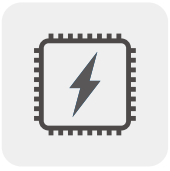
Product Highlights

DDR5 Memory Modules

Unlock Next-Gen Performance and Efficiency

Transcend's DDR5 DRAM modules are built to JEDEC standards, offering high speed, low latency, and improved power efficiency. All modules feature on-die ECC and a PMIC for enhanced stability. At 6400MT/s, Transcend adopts a client clock driver (CKD) to ensure high-frequency signal integrity and introduces CU-DIMM and CSO-DIMM options. The product lineup includes Unbuffered DIMM, SO-DIMM, ECC DIMM, Registered DIMM, as well as CU-DIMM and CSO-DIMM at 6400MT/s—providing reliable, high-performance solutions for a wide range of computing applications.

Key Features



Power Management IC (PMIC)



1.1V Low Power Supply



On-Die ECC



Major-Grade DRAM Components



JEDEC® Compliant



30µ" PCB Gold Fingers

Extra-thick gold-plated connectors enhance signal transmission and prevent corrosion, ensuring long-term reliability.



Anti-Sulfuration

Anti-sulfur resistors are protected from sulfide contamination resulting from industrial environments and pollution.

DDR5



Module Type	CUDIMM	CSODIMM	Long-DIMM	SO-DIMM
Speed	6400 MT/s		5600 MT/s	
Capacity	8GB~32GB		8GB~48GB	
Voltage	1.1V			
PCB Height	1.23 inches	1.18 inches	1.23 inches	1.18 inches
30μ" PCB Gold Finger	ECC / Registered		Wide Temp. / ECC / Registered	
Anti-Sulfuration	ECC / Registered		Wide Temp. / ECC / Registered	
Operating Temperature	0°C~85°C		0°C~85°C / 0°C~95°C / -20°C~ 95°C / -40°C~95°C	

DDR5-6400 Unbuffered DIMM

	Capacity	Component Composition	Rank x Org.	CUDIMM	CSODIMM
Standard Temp. (0°C~85°C)	8GB	(1Gx16)x4	1Rx16	-	TS1GSA64V4G6
	16GB	(2Gx8)x8	1Rx8	TS2GLA64V4E6	TS2GSA64V4E6
	32GB	(2Gx8)x16	2Rx8	TS4GLA64V4E6	TS4GSA64V4E6

DDR5-5600 Unbuffered DIMM

	Capacity	Component Composition	Rank x Org.	Long-DIMM	SO-DIMM
Extended Temp. (-20°C~95°C)	8GB	(1Gx16)x4	1Rx16	TS1GLA64V6G	TS1GSA64V6G
				TS1GLA64V6G7	TS1GSA64V6G7
	16GB	(2Gx8)x8	1Rx8	TS2GLA64V6E	TS2GSA64V6E
				TS2GLA64V6E2	TS2GSA64V6E2
				TS2GLA64V6E7	TS2GSA64V6E7
	32GB	(2Gx8)x16	2Rx8	TS4GLA64V6E	TS4GSA64V6E
				TS4GLA64V6E2	-
				TS4GLA64V6E7	TS4GSA64V6E7
Standard Temp. (0°C~95°C)	16GB	(2Gx8)x8	1Rx8	TS2GLA64V6E1	TS2GSA64V6E1
	32GB	(2Gx8)x16	2Rx8	TS4GLA64V6E1	TS4GSA64V6E1
	48GB	(3Gx8)x16	2Rx8	TS6GLA64V6E3	TS6GSA64V6E3
Standard Temp. (0°C ~ 85°C)	8GB	(1Gx16)x4	1Rx16	TS1GLA64V6G6	TS1GSA64V6G6
	16GB	(2Gx8)x8	1Rx8	TS2GLA64V6E6	TS2GSA64V6E6
	32GB	(2Gx8)x16	2Rx8	TS4GLA64V6E6	TS4GSA64V6E6
Wide Temp. (-40°C~95°C)	8GB	(1Gx16)x4	1Rx16	-	TS1GSA64V6G-I
				-	TS1GSA64V6G7-I
	16GB	(2Gx8)x8	1Rx8	TS2GLA64V6E-I	TS2GSA64V6E-I
				TS2GLA64V6E2-I	TS2GSA64V6E2-I
	32GB	(2Gx8)x16	2Rx8	TS4GLA64V6E-I	TS4GSA64V6E-I
	48GB	(3Gx8)x16	2Rx8	TS6GLA64V6E3-I	TS6GSA64V6E3-I



DDR5-6400 ECC DIMM

	Capacity	Component Composition	Rank x Org.	Long-DIMM	SO-DIMM
Standard Temp. (0°C ~ 85°C)	16GB	(2Gx8)x10	1Rx8	TS2GLA72V4E3	TS2GSA72V4E3
	32GB	(2Gx8)x20	2Rx8	TS4GLA72V4E3	TS4GSA72V4E3

DDR5-5600 ECC DIMM

	Capacity	Component Composition	Rank x Org.	Long-DIMM	SO-DIMM
Extended Temp. (-20°C~95°C)	16GB	(2Gx8)x10	1Rx8	TS2GLA72V6E	TS2GSA72V6E
				TS2GLA72V6E7	TS2GSA72V6E7
	32GB	(2Gx8)x20	2Rx8	TS4GLA72V6E	TS4GSA72V6E
				TS4GLA72V6E7	TS4GSA72V6E7
Wide Temp. (-40°C~95°C)	16GB	(2Gx8)x10	1Rx8	TS2GLA72V6E-I	TS2GSA72V6E-I
	32GB	(2Gx8)x20	2Rx8	TS4GLA72V6E-I	TS4GSA72V6E-I

DDR5-6400 Registered DIMM

	Capacity	Component Composition	Rank x Org.	Long-DIMM
Standard Temp. (0°C ~ 85°C)	16GB	(2Gx8)x10	1Rx8	TS2GAR80V4E3
	32GB	(2Gx8)x20	2Rx8	TS4GAR80V4E3

DDR5-5600 Registered DIMM

	Capacity	Component Composition	Rank x Org.	Long-DIMM
Extended Temp. (-20°C~95°C)	16GB	(2Gx8)x10	1Rx8	TS2GAR80V6E
				TS2GAR80V6E2
				TS2GAR80V6E7
	32GB	(2Gx8)x20	2Rx8	TS4GAR80V6E
				TS4GAR80V6E7
Wide Temp. (-40°C~95°C)	16GB	(2Gx8)x10	1Rx8	TS2GAR80V6E-I
	32GB	(2Gx8)x20	2Rx8	TS4GAR80V6E-I

DDR4



Module Type	Long-DIMM	SO-DIMM
Speed	3200 MT/s	
Capacity	4GB~64GB	
Voltage	1.2V	
PCB Height	Standard: 1.23 inches Very Low Profile: 0.74 inches	1.18 inches
30µ" PCB Gold Finger	Wide Temp. / ECC / Registered	
Anti-Sulfuration	Wide Temp. / ECC / Registered	
Operating Temperature	0°C~85°C / 0°C~95°C / -20°C~ 95°C / -40°C~95°C	

DDR4-3200 Unbuffered DIMM

	Capacity	Component Composition	Rank x Org.	Long-DIMM	SO-DIMM
Extended Temp. (-20°C~95°C)	8GB	(1Gx8)x8	1Rx8	TS1GLH64V2B2	TS1GSH64V2B2
		(1Gx16)x4	1Rx16	TS1GLH64V2G2	TS1GSH64V2G2
	16GB	(1Gx8)x16	2Rx8	TS2GLH64V2B2	TS2GSH64V2B2
				TS2GLH64V2B2-G	TS2GSH64V2B2-G
		(2Gx8)x8	1Rx8	TS2GLH64V2E2	TS2GSH64V2E2
	32GB	(2Gx8)x16	2Rx8	TS4GLH64V2E2	TS4GSH64V2E2



DDR4-3200 Unbuffered DIMM

	Capacity	Component Composition	Rank x Org.	Long-DIMM	SO-DIMM
Standard Temp. (0°C~95°C)	8GB	(1Gx8)x8	1Rx8	TS1GLH64V2B1	TS1GSH64V2B1
				TS1GLH64V2B1-G	TS1GSH64V2B1-G
	16GB	(1Gx8)x16	2Rx8	TS2GLH64V2B1	TS2GSH64V2B1
		(1Gx8)x16	2Rx8	TS2GLH64V2B1-G	TS2GSH64V2B1-G
		(2Gx8)x8	1Rx8	TS2GLH64V2E1	TS2GSH64V2E1
	32GB	(2Gx8)x16	2Rx8	TS4GLH64V2E1	TS4GSH64V2E1
Standard Temp. (0°C ~ 85°C)	4GB	(512Mx8)x8	1Rx8	-	TS512MSH64V2H5
	8GB	(1Gx8)x8	1Rx8	TS1GLH64V2B5	TS1GSH64V2B5
	16GB	(2Gx8)x8	1Rx8	TS2GLH64V2E5	TS2GSH64V2E5
Wide Temp (-40°C~ 95°C)	8GB	(1Gx8)x8	1Rx8	TS1GLH64V2B1-I	TS1GSH64V2B1-I
				TS1GLH64V2B2-I	TS1GSH64V2B2-I
	16GB	(1Gx8)x16	2Rx8	TS2GLH64V2B1-I	TS2GSH64V2B1-I
				TS2GLH64V2B2-I	TS2GSH64V2B2-I
		(2Gx8)x8	1Rx8	TS2GLH64V2E1-I	TS2GSH64V2E1-I
				TS2GLH64V2E2-I	TS2GSH64V2E2-I
	32GB	(2Gx8)x16	2Rx8	TS4GLH64V2E1-I	TS4GSH64V2E1-I
				TS4GLH64V2E2-I	TS4GSH64V2E2-I
Very Low Profile (-20°C~ 95°C)	8GB	(1Gx8)x8	1Rx8	TS1GLH64V2B2L	-
				TS1GLH64V2B2L-G	-
	16GB	(1Gx8)x16	2Rx8	TS2GLH64V2B2L	-
				TS2GLH64V2B2L-G	-
	32GB	(2Gx8)x16	2Rx8	TS4GLH64V2E2L	-
		(2Gx8)x16	2Rx8	TS4GLH64V2E2L-G	-



DDR4-3200 ECC DIMM

	Capacity	Component Composition	Rank x Org.	Long-DIMM	SO-DIMM
Extended Temp. (-20°C~95°C)	4GB	(512Mx8)x9	1Rx8	TS512MLH72V2H2	TS512MSH72V2H2
	8GB	(512Mx8)x18	2Rx8	TS1GLH72V2H2	TS1GSH72V2H2
		(1Gx8)x9	1Rx8	TS1GLH72V2B2	TS1GSH72V2B2
	16GB	(1Gx8)x18	2Rx8	TS2GLH72V2B2	TS2GSH72V2B2
		(2Gx8)x9	1Rx8	TS2GLH72V2E2	TS2GSH72V2E2
	32GB	(2Gx8)x18	2Rx8	TS4GLH72V2E2	TS4GSH72V2E2
Wide Temp. (-40°C~95°C)	4GB	(512Mx8)x9	1Rx8	TS512MLH72V2H2-I	TS512MSH72V2H2-I
	8GB	(1Gx8)x9	1Rx8	TS1GLH72V2B2-I	TS1GSH72V2B2-I
	16GB	(1Gx8)x18	2Rx8	TS2GLH72V2B2-I	TS2GSH72V2B2-I
		(2Gx8)x9	1Rx8	TS2GLH72V2E2-I	TS2GSH72V2E2-I
	32GB	(2Gx8)x18	2Rx8	TS4GLH72V2E2-I	TS4GSH72V2E2-I
Very Low Profile (-20°C~ 95°C)	8GB	(1Gx8)x9	1Rx8	TS1GLH72V2B2L	-
	16GB	(1Gx8)x18	2Rx8	TS2GLH72V2B2L	-

DDR4-3200 Registered DIMM

	Capacity	Component Composition	Rank x Org.	Long-DIMM
Extended Temp. (-20°C~95°C)	8GB	(1Gx8)x9	1Rx8	TS1GHR72V2B2
	16GB	(1Gx8)x18	2Rx8	TS2GHR72V2B2
		(2Gx8)x9	1Rx8	TS2GHR72V2E2
	32GB	(2Gx8)x18	2Rx8	TS4GHR72V2E2
Standard Temp. (0°C~95°C)	16GB	(2Gx8)x9	1Rx8	TS2GHR72V2E1
	32GB	(2Gx8)x18	2Rx8	TS4GHR72V2E1
Wide Temp. (-40°C~95°C)	8GB	(1Gx8)x9	1Rx8	TS1GHR72V2B2-I
	16GB	(1Gx8)x18	2Rx8	TS2GHR72V2B2-I
		(2Gx8)x9	1Rx8	TS2GHR72V2E2-I
	32GB	(2Gx8)x18	2Rx8	TS4GHR72V2E2-I
Very Low Profile (-20°C~ 95°C)	8GB	(1Gx8)x9	1Rx8	TS1GHR72V2B2L
	16GB	(1Gx8)x18	2Rx8	TS2GHR72V2B2L
		(2Gx8)x9	1Rx8	TS2GHR72V2E2L
	32GB	(2Gx8)x18	2Rx8	TS4GHR72V2E2L

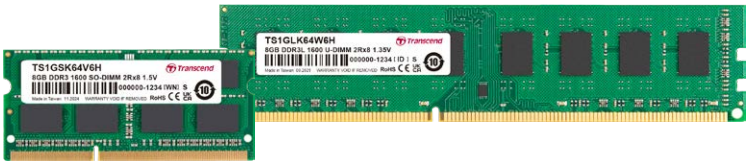
DDR3



Module Type	Long-DIMM	SO-DIMM
Speed	1866/1600 MT/s	
Capacity	1GB~8GB	
Voltage	Standard: 1.5V Low Voltage: 1.35V	
PCB Height	Standard: 1.18 inches Very Low Profile: 0.74 inches	1.18 inches
30µ" PCB Gold Finger	Wide Temp. / ECC / Registered	
Anti-Sulfuration	Wide Temp. / ECC / Registered	
Operating Temperature	0°C~85°C / -40°C~85°C	

DDR3-1866 Unbuffered DIMM

	Capacity	Component Composition	Rank x Org.	Long-DIMM	SO-DIMM
Low Voltage (0°C~85°C)	4GB	(512Mx8)x8	1Rx8	TS512MLK64W8H	TS512MSK64W8H
	8GB	(512Mx8)x16	2Rx8	-	TS1GSK64W8H
Low Voltage+ Wide Temp. (-40°C~85°C)	4GB	(512Mx8)x8	1Rx8	-	TS512MSK64W8H-I
	8GB	(512Mx8)x16	2Rx8	-	TS1GSK64W8H-I



DDR3-1600 Unbuffered DIMM

	Capacity	Component Composition	Rank x Org.	Long-DIMM	SO-DIMM
Standard Temp. (0°C~85°C)	2GB	(256Mx8)x8	1Rx8	-	TS256MSK64V6N1
	4GB	(512Mx8)x8	1Rx8	TS512MLK64V6H	TS512MSK64V6H
	8GB	(512Mx8)x16	2Rx8	TS1GLK64V6H	TS1GSK64V6H
Wide Temp. (-40°C~85°C)	4GB	(512Mx8)x8	1Rx8	TS512MLK64V6H-I	TS512MSK64V6H-I
	8GB	(512Mx8)x16	2Rx8	TS1GLK64V6H-I	TS1GSK64V6H-I
Low Voltage (0°C~85°C)	2GB	(256Mx8)x8	1Rx8	TS256MLK64W6N3	TS256MSK64W6N3
	4GB	(256Mx8)x16	2Rx8	TS512MLK64W6N3	TS512MSK64W6N3
		(512Mx8)x8	1Rx8	TS512MLK64W6H	TS512MSK64W6H
				TS512MLK64W6H3	TS512MSK64W6H3
	8GB	(512Mx8)x16	2Rx8	TS1GLK64W6H	TS1GSK64W6H
		(512Mx8)x16	2Rx8	TS1GLK64W6H3	TS1GSK64W6H3
Low Voltage+ Wide Temp. (-40°C~85°C)	1GB	(128Mx8)x8	1Rx8	TS128MLK64W6U-I	TS128MSK64W6U-I
	2GB	(256Mx8)x8	1Rx8	TS256MLK64W6N3-I	TS256MSK64W6N3-I
	4GB	(256Mx8)x16	2Rx8	TS512MLK64W6N3-I	TS512MSK64W6N3-I
		(512Mx8)x8	1Rx8	TS512MLK64W6H-I	TS512MSK64W6H-I
				TS512MLK64W6H3-I	TS512MSK64W6H3-I
	8GB	(512Mx8)x16	2Rx8	TS1GLK64W6H-I	TS1GSK64W6H-I
Low Voltage+ Very Low Profile (0°C~85°C)	4GB	(512Mx8)x8	1Rx8	TS512MLK64W6HL	-



DDR3-1600 ECC DIMM

	Capacity	Component Composition	Rank x Org.	Long-DIMM	SO-DIMM
Standard Temp. (0°C~85°C)	4GB	(512Mx8)x9	1Rx8	TS512MLK72V6H	TS512MSK72V6H
	8GB	(512Mx8)x18	2Rx8	TS1GLK72V6H	TS1GSK72V6H
Low Voltage (0°C~85°C)	4GB	(512Mx8)x9	1Rx8	TS512MLK72W6H	TS512MSK72W6H
	8GB	(512Mx8)x18	2Rx8	TS1GLK72W6H	TS1GSK72W6H
Low Voltage+ Wide Temp. (-40°C~85°C)	4GB	(512Mx8)x9	1Rx8	TS512MLK72W6H-I	TS512MSK72W6H-I
	8GB	(512Mx8)x18	2Rx8	TS1GLK72W6H-I	TS1GSK72W6H-I
Low Voltage+ Very Low Profile (0°C~85°C)	4GB	(512Mx8)x9	1Rx8	TS512MLK72W6HL	-
	8GB	(512Mx8)x18	2Rx8	TS1GLK72W6HL	-

DDR3-1600 Registered DIMM

	Capacity	Component Composition	Rank x Org.	Long-DIMM
Standard Temp. (0°C~85°C)	8GB	(512Mx8)x18	2Rx8	TS1GKR72V6H
Low Voltage (0°C~85°C)	4GB	(512Mx8)x9	1Rx8	TS512MKR72W6H
	8GB	(512Mx8)x18	2Rx8	TS1GKR72W6H
Very Low Profile (0°C~85°C)	8GB	(512Mx8)x18	2Rx8	TS1GKR72V6HL

SSD Solutions

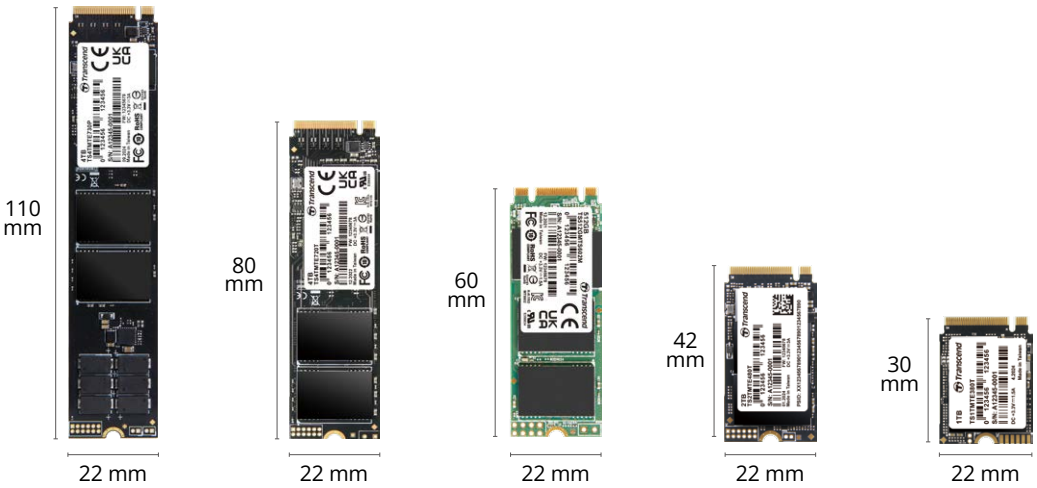
Transcend's Solid-State Drive (SSD) solutions offer fast and reliable performance in a wide variety of form factors, interfaces, and storage capacities suitable for devices operating in extreme industrial conditions. With support for Transcend's Power Shield (PS), Dynamic Thermal Throttling, and S.M.A.R.T. analysis technologies, our SSDs are designed for durability and reliability in large-scale embedded deployments.

Transcend also provides SSDs with technologies such as Power Loss Protection (PLP) to ensure data integrity in applications with unstable power supply; TCG Opal 2.0 to enhance data security; and SLC Mode to increase endurance and performance. These special product lines help address issues commonly encountered in embedded computing applications.



SSD Solutions

M.2 22110/2280/2260/2242/2230



Height= PCB+Top+Bottom

An example: Type 2280-D2-M,
D2=3.58 mm (0.88+1.35+1.35)



Type ID	Top (Max.)	Bottom (Max.)
S2	1.35 mm	-
S3	1.50 mm	-
D2	1.35 mm	1.35 mm
D5	1.50 mm	1.50 mm

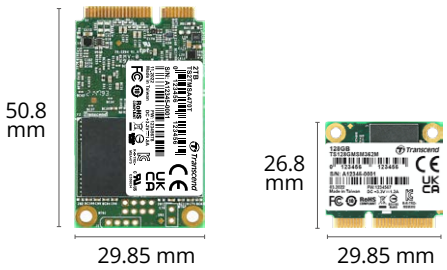
(S: Single Sided, D: Double Sided)

U.2 / 2.5”

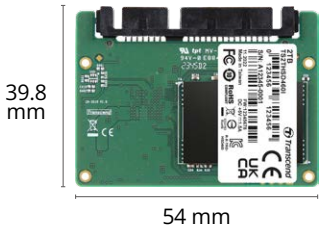




mSATA / mSATA mini



Half-Slim



Data Center SSD

Interface	Form Factor	Model	DRAM	Capacity	Feature
PCIe Gen4	U.2	ETD410T	●	3.84TB~7.68TB	eTLC, Enterprise SSD
SATA III	2.5”	ETD210T	●	480GB~3.84TB	eTLC, Enterprise SSD

218-Layer 3D NAND Flash

Interface	Form Factor	Model	DRAM	Capacity	Feature
PCIe Gen5	M.2 2280	MTE740A	●	1TB~4TB	TCG Opal
		MTE780A	-	1TB~2TB	TCG Opal
PCIe Gen4	M.2 2280	MTE770A	-	512GB~2TB	TCG Opal
	M.2 2242	MTE490A	-	512GB~1TB	TCG Opal
SATA III	M.2 2280	MTS990T	●	256GB~4TB	
	M.2 2242	MTS590T	●	256GB~2TB	
	2.5"	SSD490K	●	256GB~4TB	
	mSATA	MSA490T	●	256GB~4TB	

112-Layer 3D NAND Flash

Interface	Form Factor	Model	DRAM	Capacity	Feature
PCIe Gen4	U.2	UTE210T	●	512GB~8TB	PLP & 8CH
	M.2 22110	MTE730P	●	512GB~4TB	PLP & 8CH
	M.2 2280	MTE720T	●	512GB~4TB	8CH
		MTE760T	-	256GB~2TB	TCG Opal
		MTE712A	●	128GB~2TB	TCG Opal
		MTE712P	●	128GB~2TB	TCG Opal & PLP
		MTE560P	●	40GB~640GB	TCG Opal, PLP & SLC Mode
		MTE560I	●	40GB~640GB	TCG Opal & SLC Mode
	M.2 2242	MTE480T	-	256GB~2TB	TCG Opal
	M.2 2230	MTE380T	-	256GB~1TB	TCG Opal
PCIe Gen3	M.2 2280	MTE672A	-	128GB~2TB	TCG Opal
	M.2 2242	MTE470A	-	128GB~2TB	TCG Opal
		MTE460T	-	128GB~1TB	
	M.2 2230	MTE370T	-	256GB~1TB	
SATA III	M.2 2280	MTS970T	●	128GB~4TB	
		MTS960T	-	64GB~2TB	
		MTS970A	●	128GB~4TB	TCG Opal
		MTS970P	●	128GB~1TB	PLP
		MTS260I	●	40GB~1280GB	SLC Mode
		MTS250I	-	20GB~640GB	SLC Mode
	M.2 2242	MTS570T	●	128GB~1TB	
		MTS560T	-	64GB~2TB	
		MTS570P	●	128GB~512GB	PLP
		MTS210I	●	40GB~320GB	SLC Mode
		MTS200I	-	20GB~320GB	SLC Mode

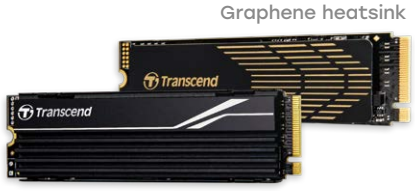
*Wide-temp. models (-40°C~85°C) & Advanced Encryption Standard (AES) provided upon request. Please contact us to know more.

112-Layer 3D NAND Flash

Interface	Form Factor	Model	DRAM	Capacity	Feature
SATA III	2.5"	SSD475P	●	2TB~8TB	TCG Opal, PLP & 8CH
		SSD470N	●	1TB~4TB	Direct Write
		SSD472K	●	128GB~4TB	
		SSD460K	-	64GB~2TB	
		SSD470A	●	128GB~4TB	TCG Opal
		SSD470P	●	128GB~1TB	PLP
		SSD550I	●	40GB~1280GB	SLC Mode
	mSATA	MSA470T	●	128GB~1TB	
		MSA460T	-	64GB~1TB	
		MSA470A	●	128GB~1TB	TCG Opal
		MSA470P	●	128GB~1TB	PLP
		MSA520I	●	40GB~320GB	SLC Mode
	Half-Slim	HSD460I	-	64GB~2TB	

MLC NAND Flash

Interface	Form Factor	Model	DRAM	Capacity	Feature
SATA III	M.2 2280	MTS810M	●	32GB~256GB	
		MTS802M	●	32GB~1TB	
	M.2 2260	MTS602M	●	32GB~512GB	
	M.2 2242	MTS410M	●	16GB~128GB	
		MTS402M	●	16GB~512GB	
		MTS400P	●	64GB	PLP
	2.5"	SSD422K	●	32GB~1TB	
		SSD420K	●	16GB~1TB	
		SSD510K	●	16GB~128GB	SLC Mode
	mSATA	MSA380M	●	16GB~256GB	
		MSA372M	●	16GB~1TB	
	mSATA mini	MSM362M	-	16GB~128GB	
	Half-Slim	HSD372M	●	16GB~128GB	



Optional Graphene or Fin-type Heatsink for M.2 2280

Transcend offers optional ultra-thin graphene or high-performance fin-type heatsink options for the M.2 2280 form factor to significantly enhance heat dissipation and maintain peak performance.

Standard Temp.: 0°C~70°C
Extended Temp.: -20°C~75°C
Wide Temp.: -40°C~85°C

*Wide-temp. models (-40°C~85°C) & Advanced Encryption Standard (AES) provided upon request. Please contact us to know more.

Data Center SSD



Transcend's Enterprise SSD designed for read-intensive workloads. Boasting enterprise 3D NAND flash, and a DRAM cache, it delivers fast data transfer with superior Quality of Service, ultra-low latency, and exceptional endurance. The integrated Power Loss Protection ensures data integrity during power fluctuations.

	Enterprise SSD	Client SSD
Workload	**Enterprise**	**Client**
NAND Endurance	High (PE: 7~10K)	Low (PE: 1~3K)
Reliability	Featured with PLP, TCG Opal & Error Handling	Simple ECC function
Latency	0.5 ms (QoS=99.9%, ETD210T)	5.7 ms (QoS=99.6%, SSD452K)

Model	ETD410T	ETD210T
Form Factor	U.2	2.5"
Interface	PCIe Gen4 x4 (8CH)	SATA III 6Gb/s
Capacity	3.84TB~7.68TB	480GB~3.84TB
Operating Temperature	0°C~70°C	
DRAM Cache	●	●
Power Loss Protection (PLP)	●	●
Performance (Sequential R/W*)	7,400/5,050 MB/s	555/530 MB/s
Endurance (TBW*)	14,016 TB	7,008 TB
Reliability (MTBF*)	2,000,000 hours	
DWPD*	1 (5 years)	
Dimensions	100.45 x 69.85 x 15 mm	100.45 x 69.85 x 7 mm
Ordering Information	TS3T84ETD410T ⋮ TS7T68ETD410T	TS480GETD210T ⋮ TS3T84ETD210T

R/W: Read/Write
TBW: Terabytes Written
MTBF: Mean Time Between Failures
DWPD: Drive Writes Per Day

*Value varies by capacity, user hardware, system configuration, and calculation method.
TBW and DWPD are based on the JEDEC JESD219 Enterprise Workload standard.

PCIe Gen5 M.2 2280



Model	MTE740A	MTE780A
Interface	PCIe Gen5 x4	
Capacity	1TB~4TB	1TB~2TB
Operating Temperature	-20°C~75°C / -20°C~85°C (S.M.A.R.T.)	-20°C~75°C
DRAM Cache	•	-
TCG Opal	•	•
Corner Bond	•	•
30μ" PCB Gold Finger	•	•
Performance (Sequential R/W*)	14,500/13,500 MB/s	11,400/10,000 MB/s
Endurance (TBW*)	2,400 TB	1,900 TB
Reliability (MTBF*)	2,000,000 hours	
DWPD*	0.55 (3 yrs)	0.86 (3 yrs)
Form Factor	2280-D2-M	2280-S2-M
Dimensions	80 x 22 x 3.58 mm	80 x 22 x 2.23 mm
Ordering Information	TS1TMTE740A ⋮ TS4TMTE740A	TS1TMTE780A TS2TMTE780A

PCIe Gen4 M.2 2280/2242

Model	MTE770A	MTE490A
Interface	PCIe Gen4 x4	
Capacity	512GB~2TB	512GB~1TB
Operating Temperature	-20°C~75°C	
DRAM Cache	-	-
TCG Opal	•	•
Corner Bond	•	•
30μ" PCB Gold Finger	•	•
Performance (Sequential R/W*)	7,400/6,500 MB/s	7,400/6,500 MB/s
Endurance (TBW*)	3,230 TB	1,615 TB
Reliability (MTBF*)	3,000,000 hours	
DWPD*	1.475 (3 yrs)	
Form Factor	2280-S2-M	2242-S2-M
Dimensions	80 x 22 x 2.23 mm	42 x 22 x 2.23 mm
Ordering Information	TS512GMTE770A ⋮ TS2TMTE770A	TS512GMTE490A TS1TMTE490A

*Value varies by capacity, user hardware, system configuration, and calculation method.

SATA III M.2 2280

Model	**MTS990T**
Interface	SATA III 6Gb/s
Capacity	256GB~4TB
Operating Temperature	-20°C~75°C
DRAM Cache	•
Corner Bond	•
30μ" PCB Gold Finger	•
Performance (Sequential R/W*)	560/520 MB/s
Endurance (TBW*)	8,000 TB
Reliability (MTBF*)	3,000,000 hours
DWPD*	1.82 (3 yrs)
Form Factor	2280-D2-B-M
Dimensions	80 x 22 x 3.58 mm
Ordering Information	TS256GMTS990T ⋮ TS4TMTS990T

SATA III M.2 2242

Model	**MTS590T**
Interface	SATA III 6Gb/s
Capacity	256GB~2TB
Operating Temperature	-20°C~75°C
DRAM Cache	•
Corner Bond	•
30μ" PCB Gold Finger	•
Performance (Sequential R/W*)	560/520 MB/s
Endurance (TBW*)	2,000 TB
Reliability (MTBF*)	3,000,000 hours
DWPD*	1.82 (3 yrs)
Form Factor	2242-D2-B-M
Dimensions	42 x 22 x 3.58 mm
Ordering Information	TS256GMTS590T ⋮ TS2TMTS590T

*Value varies by capacity, user hardware, system configuration, and calculation method.

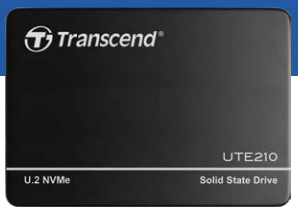
SATA III 2.5

Model	**SSD490K**
Interface	SATA III 6Gb/s
Capacity	256GB~4TB
Operating Temperature	-20°C~75°C
DRAM Cache	•
Performance (Sequential R/W*)	560/520 MB/s
Endurance (TBW*)	8,000 TB
Reliability (MTBF*)	3,000,000 hours
DWPD*	1.82 (3 yrs)
Dimensions	100.45 x 69.85 x 7 mm
Ordering Information	TS256GSSD490K ⋮ TS4TSSD490K

SATA III mSATA

Model	**MSA490T**
Interface	SATA III 6Gb/s
Capacity	256GB~4TB
Operating Temperature	-20°C~75°C
DRAM Cache	•
Corner Bond	•
30μ" PCB Gold Finger	•
Performance (Sequential R/W*)	560/520 MB/s
Endurance (TBW*)	8,000 TB
Reliability (MTBF*)	3,000,000 hours
DWPD*	1.82 (3 yrs)
Form Factor	MO-300A
Dimensions	50.8. x 29.85 x 4.85 mm
Ordering Information	TS256GMSA490T ⋮ TS4TMSA490T

U.2 SSD



Model	**UTE210T**
Interface	PCIe Gen4 x4 (8CH)
Capacity	512GB~8TB
Operating Temperature	-20°C~75°C
DRAM Cache	•
Power Loss Protection (PLP)	•
Performance (Sequential R/W*)	7,400/6,600 MB/s
Endurance (TBW*)	11,520 TB
Reliability (MTBF*)	3,000,000 hours
DWPD*	1.32 (3 years)
Dimensions	100.45 x 69.85 x 7 mm
Ordering Information	TS512GUTE210T ⋮ TS8TUTE210T

PCIe Gen4 M.2 22110



Model	**MTE730P**
Interface	PCIe Gen4 x4 (8CH)
Capacity	512GB~4TB
Operating Temperature	-40°C~85°C
DRAM Cache	•
Power Loss Protection (PLP)	•
Corner Bond	•
30μ" PCB Gold Finger	•
Performance (Sequential R/W*)	7,500/6,700 MB/s
Endurance (TBW*)	5,920 TB
Reliability (MTBF*)	3,000,000 hours
DWPD*	1.35 (3 years)
Form Factor	22110-D5-M
Dimensions	110 x 22 x 3.88 mm
Ordering Information	TS512GMTE730P ⋮ TS4TMTE730P

*Value varies by capacity, user hardware, system configuration, and calculation method.

PCIe Gen4 M.2 2280

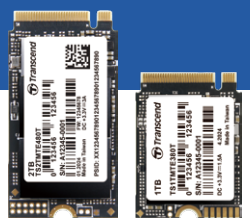


Model	MTE720T	MTE760T	MTE712A
Interface	PCIe Gen4 x4 (8CH)	PCIe Gen4 x4	PCIe Gen4 x4
Capacity	512GB~4TB	256GB~2TB	128GB~2TB
Operating Temperature		-20°C~75°C	
DRAM Cache	•	-	•
TCG Opal	-	•	•
Corner Bond	•	•	•
30µ" PCB Gold Finger	•	•	•
Performance (Sequential R/W*)	7,500/6,700 MB/s	5,000/4,100 MB/s	3,800/3,000 MB/s
Endurance (TBW*)	5,920 TB	2,640 TB	4,480 TB
Reliability (MTBF*)		3,000,000 hours	
DWPD*	1.35 (3 years)	1.2 (3 years)	1.99 (3 years)
Form Factor	2280-D2-M	2280-S2-M	2280-D2-M
Dimensions	80 x 22 x 3.58 mm	80 x 22 x 2.23 mm	80 x 22 x 3.58 mm
Ordering Information	TS512GMTE720T ⋮ TS4TMTE720T	TS256GMTE760T ⋮ TS2TMTE760T	TS128GMTE712A ⋮ TS2TMTE712A

Model	MTE712P	MTE560P	MTE560I
Interface		PCIe Gen4 x4	
Capacity	128GB~2TB	40GB~640GB	40GB~640GB
Operating Temperature		-40°C~85°C	
DRAM Cache	•	•	•
TCG Opal	•	•	•
Power Loss Protection (PLP)	•	•	-
SLC Mode	-	•	•
Corner Bond	•	•	•
30µ" PCB Gold Finger	•	•	•
Performance (Sequential R/W*)	3,800/3,100 MB/s	3,800/3,200 MB/s	3,800/3,200 MB/s
Endurance (TBW*)	4,320 TB	38,000 TB	38,000 TB
Reliability (MTBF*)		3,000,000 hours	
DWPD*	1.97 (3 years)	54.2 (3 years)	54.2 (3 years)
Form Factor	2280-D5-M	2280-D5-M	2280-D2-M
Dimensions	80 x 22 x 3.88 mm	80 x 22 x 3.88 mm	80 x 22 x 3.58 mm
Ordering Information	TS128GMTE712P ⋮ TS2TMTE712P	TS40GMTE560P ⋮ TS640GMTE560P	TS40GMTE560I ⋮ TS640GMTE560I

*Value varies by capacity, user hardware, system configuration, and calculation method.

PCIe Gen4 M.2 2242/2230



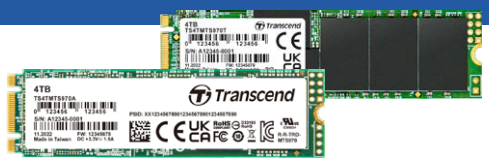
Model	MTE480T	MTE380T
Interface	PCIe Gen4 x4	PCIe Gen4 x4
Capacity	256GB~2TB	256GB~1TB
Operating Temperature	-20°C~75°C	
DRAM Cache	-	-
TCG Opal	•	•
Corner Bond	•	•
30µ" PCB Gold Finger	•	•
Performance (Sequential R/W*)	5,000/4,100 MB/s	5,000/3,300 MB/s
Endurance (TBW*)	2,640 TB	1,320 TB
Reliability (MTBF*)	3,000,000 hours	
DWPD*	1.2 (3 years)	
Form Factor	2242-S2-M	2230-S3-M
Dimensions	42 x 22 x 2.23 mm	30 x 22 x 2.38 mm
Ordering Information	TS256GMTE480T ⋮ TS2TMTE480T	TS256GMTE380T ⋮ TS1TMTE380T

PCIe Gen3 M.2 2280/2242/2230

Model	MTE672A	MTE470A	MTE460T	MTE370T
Interface	PCIe Gen3 x4	PCIe Gen3 x4	PCIe Gen3 x2	PCIe Gen3 x4
Capacity	128GB~2TB	128GB~2TB	128GB~1TB	256GB~1TB
Operating Temperature	-20°C~75°C			
DRAM Cache	-	-	-	-
TCG Opal	•	•	-	-
Corner Bond	•	•	•	•
30µ" PCB Gold Finger	•	•	•	•
Performance (Sequential R/W*)	2,000/1,700 MB/s	2,000/1,700 MB/s	1,700/1,500 MB/s	2,000/1,700 MB/s
Endurance (TBW*)	1,920 TB	1,800 TB	900 TB	960 TB
Reliability (MTBF*)	3,000,000 hours			
DWPD*	0.88 (3 years)	0.86 (3 years)	0.86 (3 years)	0.88 (3 years)
Form Factor	2280-S2-M	2242-S2-M	2242-D2-B-M	2230-S3-M
Dimensions	80 x 22 x 2.23 mm	42 x 22 x 2.23 mm	42 x 22 x 3.58 mm	30 x 22 x 2.38 mm
Ordering Information	TS128GMTE672A ⋮ TS2TMTE672A	TS128GMTE470A ⋮ TS2TMTE470A	TS128GMTE460T ⋮ TS1TMTE460T	TS256GMTE370T ⋮ TS1TMTE370T

*Value varies by capacity, user hardware, system configuration, and calculation method.

SATA III M.2 2280

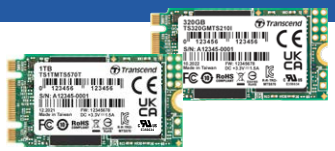


Model	MTS970T	MTS960T	MTS970A
Interface		SATA III 6Gb/s	
Capacity	128GB~4TB	64GB~2TB	128GB~4TB
Operating Temperature		-20°C~75°C	
DRAM Cache	●	-	●
TCG Opal	-	-	●
Corner Bond	●	●	●
30μ" PCB Gold Finger	●	●	●
Performance (Sequential R/W*)	560/520 MB/s	560/500 MB/s	560/500 MB/s
Endurance (TBW*)	9,680 TB	4,376 TB	9,680 TB
Reliability (MTBF*)		3,000,000 hours	
DWPD*	2.21 (3 years)	1.95 (3 years)	2.21 (3 years)
Form Factor	2280-D2-B-M	2280-S2-B-M	2280-D2-B-M
Dimensions	80 x 22 x 3.58 mm	80 x 22 x 2.23 mm	80 x 22 x 3.58 mm
Ordering Information	TS128GMTS970T ⋮ TS4TMTS970T	TS64GMTS960T ⋮ TS2TMTS960T	TS128GMTS970A ⋮ TS4TMTS970A

Model	MTS970P	MTS260I	MTS250I
Interface		SATA III 6Gb/s	
Capacity	128GB~1TB	40GB~1280GB	20GB~640GB
Operating Temperature		-40°C~85°C	
DRAM Cache	●	●	-
Power Loss Protection (PLP)	●	-	-
SLC Mode	-	●	●
Corner Bond	●	●	●
30μ" PCB Gold Finger	●	●	●
Performance (Sequential R/W*)	560/520 MB/s	560/520 MB/s	560/515 MB/s
Endurance (TBW*)	2,400 TB	62,500 TB	32,000 TB
Reliability (MTBF*)		3,000,000 hours	
DWPD*	2.14 (3 years)	52.3 (3 years)	45.7 (3 years)
Form Factor	2280-D5-B-M	2280-D2-B-M	2280-S2-B-M
Dimensions	80 x 22 x 3.88 mm	80 x 22 x 3.58 mm	80 x 22 x 2.23 mm
Ordering Information	TS128GMTS970P ⋮ TS1TMTS970P	TS40GMTS260I ⋮ TS1280GMTS260I	TS20GMTS250I ⋮ TS640GMTS250I

*Value varies by capacity, user hardware, system configuration, and calculation method.

SATA III M.2 2242



Model	MTS570T	MTS560T
Interface	SATA III 6Gb/s	
Capacity	128GB~1TB	64GB~2TB
Operating Temperature	-20°C~75°C	
DRAM Cache	•	-
TCG Opal	-	-
Corner Bond	•	•
30μ" PCB Gold Finger	•	•
Performance (Sequential R/W*)	560/520 MB/s	560/510 MB/s
Endurance (TBW*)	2,420 TB	4,376 TB
Reliability (MTBF*)	3,000,000 hours	
DWPD*	2.16 (3 years)	2 (3 years)
Form Factor	2242-D2-B-M	
Dimensions	42 x 22 x 3.58 mm	
Ordering Information	TS128GMTS570T ⋮ TS1TMTS570T	TS64GMTS560T ⋮ TS2TMTS560T

Model	MTS570P	MTS210I	MTS200I
Interface	SATA III 6Gb/s		
Capacity	128GB~512GB	40GB~320GB	20GB~320GB
Operating Temperature	-40°C~85°C		
DRAM Cache	•	•	-
Power Loss Protection (PLP)	•	-	-
SLC Mode	-	•	•
Corner Bond	•	•	•
30μ" PCB Gold Finger	•	•	•
Performance (Sequential R/W*)	560/500 MB/s	560/520 MB/s	560/510 MB/s
Endurance (TBW*)	1,150 TB	11,446 TB	16,000 TB
Reliability (MTBF*)	3,000,000 hours		
DWPD*	2.05 (3 years)	52.3 (3 years)	51.4 (3 years)
Form Factor	2242-D5-B-M	2242-D2-B-M	2242-D2-B-M
Dimensions	42 x 22 x 3.88 mm	42 x 22 x 3.58 mm	42 x 22 x 3.58 mm
Ordering Information	TS128GMTS570P ⋮ TS512GMTS570P	TS40GMTS210I ⋮ TS320GMTS210I	TS20GMTS200I ⋮ TS320GMTS200I

*Value varies by capacity, user hardware, system configuration, and calculation method.

112-Layer 3D NAND Flash

SATA III 2.5”



Model	SSD475P	SSD470N	SSD472K	SSD460K
Interface	SATA III 6Gb/s			
Capacity	2TB~8TB	1TB~4TB	128GB~4TB	64GB~2TB
Operating Temperature	-40°C~85°C	-20°C~75°C	-20°C~75°C	-20°C~75°C
DRAM Cache	●	●	●	-
TCG Opal	●	-	-	-
Power Loss Protection (PLP)	●	-	-	-
Performance (Sequential R/W*)	560/530 MB/s	560/520 MB/s	560/520 MB/s	560/500 MB/s
Endurance (TBW*)	19,830 TB	8,162 TB	9,680 TB	4,376 TB
Reliability (MTBF*)	2,000,000 hours	3,000,000 hours	3,000,000 hours	3,000,000 hours
DWPD*	2.26 (3 years)	1.91 (3 years)	2.16 (3 years)	1.95 (3 years)
Dimensions	100.45 x 69.85 x 7 mm			
Ordering Information	TS2TSSD475P ⋮ TS8TSSD475P	TS1TSSD470N ⋮ TS4TSSD470N	TS128GSSD472K ⋮ TS4TSSD472K	TS64GSSD460K ⋮ TS2TSSD460K

Model	SSD470A	SSD470P	SSD550I
Interface	SATA III 6Gb/s		
Capacity	128GB~4TB	128GB~1TB	40GB~1280GB
Operating Temperature	-20°C~75°C	-20°C~75°C	-40°C~85°C
DRAM Cache	●	●	●
TCG Opal	●	-	-
Power Loss Protection (PLP)	-	●	-
SLC Mode	-	-	●
Performance (Sequential R/W*)	560/500 MB/s	560/520 MB/s	560/520 MB/s
Endurance (TBW*)	9,448 TB	2,420 TB	62,500 TB
Reliability (MTBF*)	3,000,000 hours		
DWPD*	2.21 (3 years)	2.16 (3 years)	47.7 (3 years)
Dimensions	100.45 x 69.85 x 7 mm		
Ordering Information	TS128GSSD470A ⋮ TS4TSSD470A	TS128GSSD470P ⋮ TS1TSSD470P	TS40GSSD550I ⋮ TS1280GSSD550I

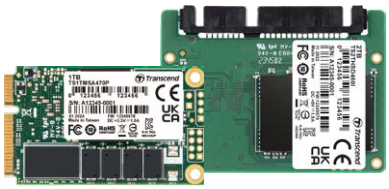
*Value varies by capacity, user hardware, system configuration, and calculation method.

SATA III mSATA



Model	MSA470T	MSA460T	MSA470A
Interface		SATA III 6Gb/s	
Capacity	128GB~1TB	64GB~1TB	128GB~1TB
Operating Temperature		-20°C~75°C	
DRAM Cache	•	-	•
TCG Opal	-	-	•
Corner Bond	•	•	•
30μ" PCB Gold Finger	•	•	•
Performance (Sequential R/W*)	560/520 MB/s	560/500 MB/s	560/520 MB/s
Endurance (TBW*)	2,420 TB	2,188 TB	2,420 TB
Reliability (MTBF*)		3,000,000 hours	
DWPD*	2.16 (3 years)	2 (3 years)	2.16 (3 years)
Form Factor		MO-300A	
Dimensions		50.8 x 29.85 x 4.85 mm	
Ordering Information	TS128GMSA470T ⋮ TS1TMSA470T	TS64GMSA460T ⋮ TS1TMSA460T	TS128GMSA470A ⋮ TS1TMSA470A

SATA III mSATA/Half-Slim



Model	MSA470P	MSA520I	HSD460I
Interface		SATA III 6Gb/s	
Capacity	128GB~1TB	40GB~320GB	64GB~2TB
Operating Temperature		-40°C~85°C	
DRAM Cache	•	•	-
Power Loss Protection (PLP)	•	-	-
SLC Mode	-	•	-
Corner Bond	•	•	•
30μ" PCB Gold Finger	•	•	-
Performance (Sequential R/W*)	560/520 MB/s	560/520 MB/s	560/500 MB/s
Endurance (TBW*)	2,400 TB	11,446 TB	3,570 TB
Reliability (MTBF*)		3,000,000 hours	
DWPD*	2.19 (3 years)	52.3 (3 years)	1.75 (3 years)
Form Factor	MO-300A	MO-300A	MO-297
Dimensions	50.8 x 29.85 x 4.85 mm	50.8 x 29.85 x 4.85 mm	54 x 39.8 x 4 mm
Ordering Information	TS128GMSA470P ⋮ TS1TMSA470P	TS40GMSA520I ⋮ TS320GMSA520I	TS64GHSD460I ⋮ TS2THSD460I

*Value varies by capacity, user hardware, system configuration, and calculation method.

SATA III M.2 2280



Model	MTS810M	MTS802M
Interface	SATA III 6Gb/s	
Capacity	32GB~256GB	32GB~1TB
Operating Temperature	0°C~70°C	
DRAM Cache	•	•
SLC Mode	-	-
Corner Bond	•	•
30μ" PCB Gold Finger	•	•
Performance (Sequential R/W*)	550/420 MB/s	530/460 MB/s
Endurance (TBW*)	740 TB	2,360 TB
Reliability (MTBF*)	2,500,000 hours	
DWPD*	2.6 (3 years)	
Form Factor	2280-D2-B-M	
Dimensions	80 x 22 x 3.58 mm	
Ordering Information	TS32GMTS810M ⋮ TS256GMTS810M	TS32GMTS802M ⋮ TS1TMTS802M

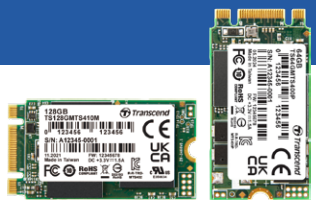
SATA III M.2 2260



Model	MTS602M
Interface	SATA III 6Gb/s
Capacity	32GB~512GB
Operating Temperature	0°C~70°C
DRAM Cache	•
Corner Bond	•
30μ" PCB Gold Finger	•
Performance (Sequential R/W*)	530/450 MB/s
Endurance (TBW*)	1,480 TB
Reliability (MTBF*)	2,500,000 hours
DWPD*	2.6 (3 years)
Form Factor	2260-D2-B-M
Dimensions	60 x 22 x 3.58 mm
Ordering Information	TS32GMTS602M ⋮ TS512GMTS602M

*Value varies by capacity, user hardware, system configuration, and calculation method.

SATA III M.2 2242



Model	MTS410M	MTS402M	MTS400P
Interface	SATA III 6Gb/s		SATA III 6Gb/s
Capacity	16GB~128GB	16GB~512GB	64GB
Operating Temperature	0°C~70°C	0°C~70°C	-40°C~85°C
DRAM Cache	●	●	●
Power Loss Protection (PLP)	-	-	●
SLC Mode	-	-	-
Corner Bond	●	●	●
30μ" PCB Gold Finger	●	●	●
Performance (Sequential R/W*)	550/260 MB/s	530/470 MB/s	335/109 MB/s
Endurance (TBW*)	360 TB	1,100 TB	180 TB
Reliability (MTBF*)		2,500,000 hours	
DWPD*	2.6 (3 years)	2 (3 years)	2 (3 years)
Form Factor	2242-D2-B-M		2242-D5-B-M
Dimensions	42 x 22 x 3.58 mm		42 x 22 x 3.88 mm
Ordering Information	TS16GMTS410M ⋮ TS128GMTS410M	TS16GMTS402M ⋮ TS512GMTS402M	TS64GMTS400P

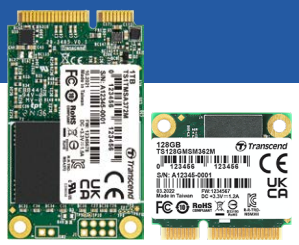
SATA III 2.5"



Model	SSD422K	SSD420K	SSD510K
Interface	SATA III 6Gb/s		SATA III 6Gb/s
Capacity	32GB~1TB	16GB~1TB	16GB~128GB
Operating Temperature		0°C~70°C	
DRAM Cache	●	●	●
Power Loss Protection (PLP)	-	-	-
SLC Mode	-	-	●
Performance (Sequential R/W*)	550/460 MB/s	530/470 MB/s	530/440 MB/s
Endurance (TBW*)	2,940 TB	2,940 TB	2,840 TB
Reliability (MTBF*)	2,000,000 hours	2,000,000 hours	1,500,000 hours
DWPD*	2.6 (3 years)	2.6 (3 years)	15.2 (3 years)
Dimensions		100.45 x 69.85 x 7 mm	
Ordering Information	TS32GSSD422K ⋮ TS1TSSD422K	TS16GSSD420K ⋮ TS1TSSD420K	TS16GSSD510K ⋮ TS128GSSD510K

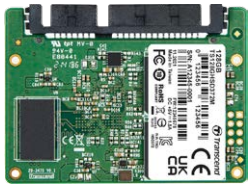
*Value varies by capacity, user hardware, system configuration, and calculation method.

SATA III mSATA/mSATA mini



Model	MSA380M	MSA372M	MSM362M
Interface		SATA III 6Gb/s	
Capacity	16GB~256GB	16GB~1TB	16GB~128GB
Operating Temperature		0°C~70°C	
DRAM Cache	•	•	-
Corner Bond	•	•	•
30μ" PCB Gold Finger	•	•	•
Performance (Sequential R/W*)	550/420 MB/s	550/450 MB/s	520/220 MB/s
Endurance (TBW*)	740 TB	2,360 TB	168 TB
Reliability (MTBF*)		2,500,000 hours	
DWPD*	2.6 (3 years)	2.6 (3 years)	1.19 (3 years)
Form Factor	MO-300A	MO-300A	MO-300B
Dimensions	50.8 x 29.85 x 4.85 mm	50.8 x 29.85 x 4.85 mm	26.8 x 29.85 x 3.85 mm
Ordering Information	TS16GMSA380M ⋮ TS256GMSA380M	TS16GMSA372M ⋮ TS1TMSA372M	TS16GMSA362M ⋮ TS128GMSA362M

SATA III Half-Slim

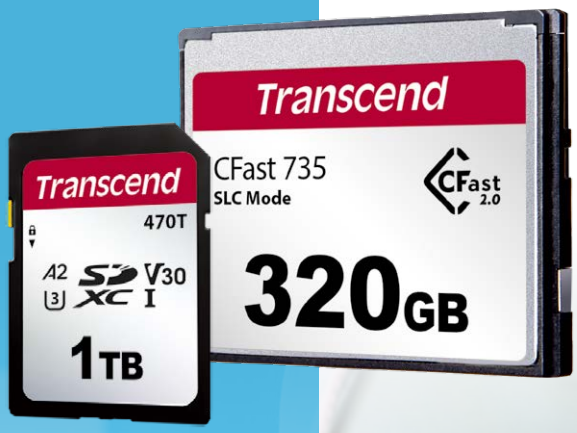


Model	HSD372M
Interface	SATA III 6Gb/s
Capacity	16GB~128GB
Operating Temperature	0°C~70°C
DRAM Cache	•
Corner Bond	•
30μ" PCB Gold Finger	-
Performance (Sequential R/W*)	530/200 MB/s
Endurance (TBW*)	360 TB
Reliability (MTBF*)	2,500,000 hours
DWPD*	2.6 (3 years)
Form Factor	MO-297
Dimensions	54 x 39.8 x 4 mm
Ordering Information	TS16GHSD372M ⋮ TS128GHSD372M

*Value varies by capacity, user hardware, system configuration, and calculation method.

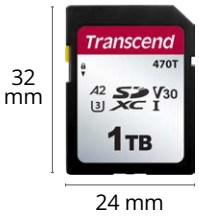
Memory Cards

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Memory Cards

SD



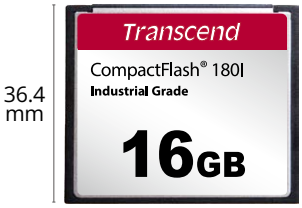
microSD



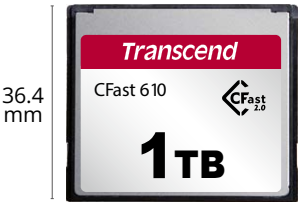
CFexpress



CompactFlash



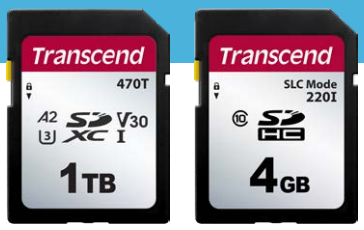
CFast



Product Line

Form Factor	Model	Flash Type	Capacity	Operating Temperature
SD	SDC470T / SDC470I	218-layer 3D TLC	128GB~1TB	-25°C~85°C / -40°C~85°C
	SDC460T / SDC460I	112-layer 3D TLC	64GB~1TB	-25°C~85°C / -40°C~85°C
	SDC240I	112-layer 3D TLC (SLC Mode)	20GB~160GB	-40°C~85°C
	SDHC10M	MLC	8GB~32GB	-25°C~85°C
	SDC400I	MLC	8GB~16GB	-40°C~85°C
	SDC220I	MLC (SLC Mode)	128MB~4GB	-40°C~85°C
microSD	USD470T / USD470I	218-layer 3D TLC	128GB~1TB	-25°C~85°C / -40°C~85°C
	USD460T / USD460I	112-layer 3D TLC	64GB~512GB	-25°C~85°C / -40°C~85°C
	USD240I	112-layer 3D TLC (SLC Mode)	20GB~160GB	-40°C~85°C
	USDC10M	MLC	4GB~32GB	-25°C~85°C
	USDC10I	MLC	8GB~64GB	-40°C~85°C
	USD220I	MLC (SLC Mode)	2GB~16GB	-40°C~85°C
CFexpress	CFE900 / CFE900I	112-layer 3D TLC	256GB~1TB	-10°C~70°C/-40°C~85°C
	CFE860 / CFE860I	112-layer 3D TLC (SLC Mode)	80GB~320GB	-10°C~70°C/-40°C~85°C
CompactFlash	CF170	MLC	8GB~64GB	-25°C~85°C
	CF180 / CF180I	MLC (SLC Mode)	128MB~16GB	-25°C~85°C / -40°C~85°C
CFast	CFX610 / CFX610I	112-layer 3D TLC	64GB~1TB	-5°C~70°C / -40°C~85°C
	CFX735 / CFX735I	112-layer 3D TLC (SLC Mode)	20GB~320GB	-5°C~70°C / -40°C~85°C
	CFX730 / CFX730I	112-layer 3D TLC (SLC Mode)	20GB~320GB	-5°C~70°C / -40°C~85°C
	CFX602 / CFX602I	MLC	8GB~256GB	-5°C~70°C / -40°C~85°C
	CFX722I	MLC (SLC Mode)	4GB~128GB	-40°C~85°C

SD Cards



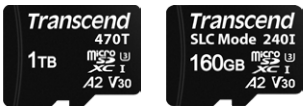
Model	SDC470T / SDC470I	SDC460T / SDC460I	SDC240I
Flash	218-layer 3D TLC	112-layer 3D TLC	112-layer 3D TLC (SLC Mode)
Capacity	128GB~1TB	64GB~1TB	20GB~160GB
Operating Temperature	-25°C~85°C / -40°C~85°C	-25°C~85°C / -40°C~85°C	-40°C~85°C
Dynamic Thermal Throttling	•	-	-
Performance (Sequential R/W*)	100/80 MB/s (SDR104) 200/130 MB/s (DDR225)	100/85 MB/s	100/85 MB/s
Endurance (TBW*)	2,660 TB	2,660 TB	13,524 TB
Standard	SD 6.1	SD 6.1/5.1	SD 6.1
Connector		9 pin	
Dimensions		24 x 32 x 2.1 mm	
Ordering Information	TS128GSDC470T/I ⋮ TS1TSDC470T/I	TS64GSDC460T/I ⋮ TS1TSDC460T/I	TS20GSDC240I ⋮ TS160GSDC240I

Model	SDHC10M	SDC400I	SDC220I
Flash	MLC	MLC	MLC (SLC Mode)
Capacity	8GB~32GB	8GB~16GB	128MB~4GB
Operating Temperature	-25°C~85°C	-40°C~85°C	-40°C~85°C
Performance (Sequential R/W*)	21/20 MB/s	75/33 MB/s	22/20 MB/s
Endurance (TBW*)	60 TB	32 TB	66 TB
Standard	SD 3.01	SD 3.01	SD 3.01/2.0
Connector		9 pin	
Dimensions		24 x 32 x 2.1 mm	
Ordering Information	TS8GSDHC10M ⋮ TS32GSDHC10M	TS8GSDC400I TS16GSDC400I	TS128MSDC220I ⋮ TS4GSDC220I

R/W: Read/Write
TBW: Terabytes Written

*Value varies by capacity, user hardware, system configuration, and calculation method.

microSD Cards

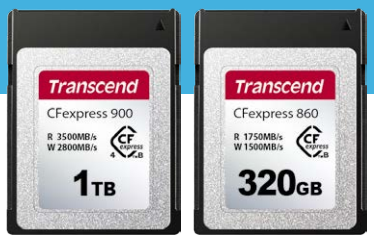


Model	USD470T / USD470I	USD460T / USD460I	USD240I
Flash	218-layer 3D TLC	112-layer 3D TLC	112-layer 3D TLC (SLC Mode)
Capacity	128GB~1TB	64GB~512GB	20GB~160GB
Operating Temperature	-25°C~85°C / -40°C~85°C	-25°C~85°C / -40°C~85°C	-40°C~85°C
Dynamic Thermal Throttling	•	-	-
Performance (Sequential R/W*)	100/80 MB/s (SDR104) 200/130 MB/s (DDR225)	100/80 MB/s	100/80 MB/s
Endurance (TBW*)	2,660 TB	1,343 TB	13,526 TB
Standard	SD 6.1	SD 6.1/5.1	SD 6.1
Connector		8 pin	
Dimensions		11 x 15 x 1 mm	
Ordering Information	TS128GUSD470T/I ⋮ TS1TUSD470T/I	TS64GUSD460T/I ⋮ TS512GUSD460T/I	TS20GUSD240I ⋮ TS160GUSD240I

Model	USDC10M	USDC10I	USD220I
Flash	MLC	MLC	MLC (SLC Mode)
Capacity	4GB~32GB	8GB~64GB	2GB~16GB
Operating Temperature	-25°C~85°C	-40°C~85°C	-40°C~85°C
Performance (Sequential R/W*)	24/22 MB/s	24/22 MB/s	80/45 MB/s
Endurance (TBW*)	60 TB	120 TB	300 TB
Standard	SD 3.01	SD 3.01	SD 3.01/2.0
Connector		8 pin	
Dimensions		11 x 15 x 1 mm	
Ordering Information	TS4GUSDC10M ⋮ TS32GUSDC10M	TS8GUSDC10I ⋮ TS64GUSDC10I	TS2GUSD220I ⋮ TS16GUSD220I

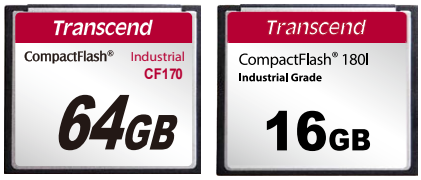
*Value varies by capacity, user hardware, system configuration, and calculation method.

CFexpress Cards



Model	CFE900 / CFE900I	CFE860 / CFE860I
Flash	112-layer 3D TLC	112-layer 3D TLC (SLC Mode)
Capacity	256GB~1TB	80GB~320GB
Operating Temperature	-10°C~70°C / -40°C~85°C	
Performance (Sequential R/W*)	3,500/2,800 MB/s	1,750/1,500 MB/s
Endurance (TBW*)	2,240 TB	11,500 TB
Standard	CFexpress Type B	
Dimensions	38.5 x 29.6 x 3.8 mm	
Ordering Information	TS256GCFE900/I ⋮ TS1TCFE900/I	TS80GCFE860/I ⋮ TS320GCFE860/I

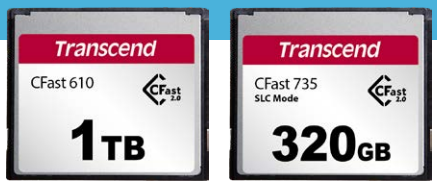
CompactFlash Cards



Model	CF170	CF180 / CF180I
Flash	MLC	MLC (SLC Mode)
Capacity	8GB~64GB	128MB~16GB
Operating Temperature	-25°C~85°C	-25°C~85°C / -40°C~85°C
Performance (Sequential R/W*)	87/67 MB/s	85/75 MB/s
Endurance (TBW*)	85 TB	210 TB
Standard	True IDE	
Connector	50 pin	
Dimensions	42.8 x 36.4 x 3.3 mm	
Ordering Information	TS8GCF170 ⋮ TS64GCF170	TS128MCF180/I ⋮ TS16GCF180/I

*Value varies by capacity, user hardware, system configuration, and calculation method.

CFast Cards



Model	CFX610 /CFX610I	CFX735 / CFX735I	CFX730 / CFX730I
Flash	112-layer 3D TLC	112-layer 3D TLC (SLC Mode)	112-layer 3D TLC (SLC Mode)
Capacity	64GB~1TB	20GB~320GB	20GB~320GB
Operating Temperature	-5°C~70°C / -40°C~85°C	-5°C~70°C / -40°C~85°C	-5°C~70°C / -40°C~85°C
Write Protect	-	•	-
Performance (Sequential R/W*)	550/520 MB/s	550/520 MB/s	550/520 MB/s
Endurance (TBW*)	1,580 TB	18,000 TB	18,000 TB
Standard	SATA III 6Gb/s		
Connector	24 pin		
Dimensions	42.8 x 36.4 x 3.3 mm		
Ordering Information	TS64GCFX610/I ⋮ TS1TCFX610/I	TS20GCFX735/I ⋮ TS320GCFX735/I	TS20GCFX730/I ⋮ TS320GCFX730/I

Model	CFX602 / CFX602I	CFX722I
Flash	MLC	MLC (SLC Mode)
Capacity	8GB~256GB	4GB~128GB
Operating Temperature	-5°C~70°C / -40°C~85°C	-40°C~85°C
Performance (Sequential R/W*)	510/340 MB/s	540/425 MB/s
Endurance (TBW*)	360 TB	1,800 TB
Standard	SATA III 6Gb/s	
Connector	24 pin	
Dimensions	42.8 x 36.4 x 3.3 mm	
Ordering Information	TS8GCFX602/I ⋮ TS256GCFX602/I	TS4GCFX722I ⋮ TS128GCFX722I

*Value varies by capacity, user hardware, system configuration, and calculation method.

Flash Solutions

Transcend's flash solutions include USB flash drives, USB flash modules. Our USB flash drives feature a compact and portable design, ideal for applications where reliability and data retention are crucial. Our flash modules offer a simple solution for integrating SSD storage technology into legacy PC- and laptop-based systems.

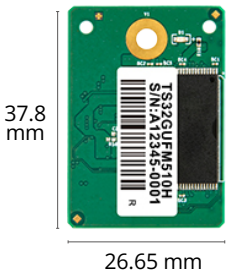


Flash Solutions

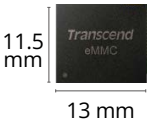
USB Flash Drive



USB Flash Module



eMMC



Product Line

Form Factor	Model	Flash Type	Capacity	Operating Temperature
USB Flash Drives	JF282T	112-layer 3D TLC	64GB~512GB	0°C~70°C
	JF180I	112-layer 3D TLC (SLC Mode)	8GB~16GB	-40°C~85°C
	JF270M	MLC	8GB~32GB	0°C~70°C
USB Flash Modules	UFM510H	MLC	8GB~32GB	0°C~70°C
eMMC	EMC410T	3D TLC	32GB~64GB	-25°C~85°C
	EMC310M	MLC	16GB	-25°C~85°C

USB Flash Drives



Model	JF282T	JF180I	JF270M
Flash	112-layer 3D TLC	112-layer 3D TLC (SLC Mode)	MLC
Capacity	64GB~512GB	8GB~16GB	8GB~32GB
Operating Temperature	0°C~70°C	-40°C~85°C	0°C~70°C
Performance (Sequential R/W*)	255/115 MB/s	155/135 MB/s	160/40 MB/s
Interface	USB 3.1 Gen 1	USB 3.0	USB 3.1 Gen 1
Connector	USB Type-A		
Dimensions	61.5 x 18.6 x 8.7 mm		
Ordering Information	TS64GJF282T ⋮ TS512GJF282T	TS8GJF180I TS16GJF180I	TS8GJF270M ⋮ TS32GJF270M

USB Flash Modules



Model	UFM510H
Flash	MLC
Capacity	8GB~32GB
Operating Temperature	0°C~70°C
Performance (Sequential R/W*)	42/21 MB/s
Interface	USB 2.0
Connector	10 pin USB port
Dimensions	37.8 x 26.65 x 5.81 mm
Ordering Information	TS8GUFM510H ⋮ TS32GUFM510H

eMMC



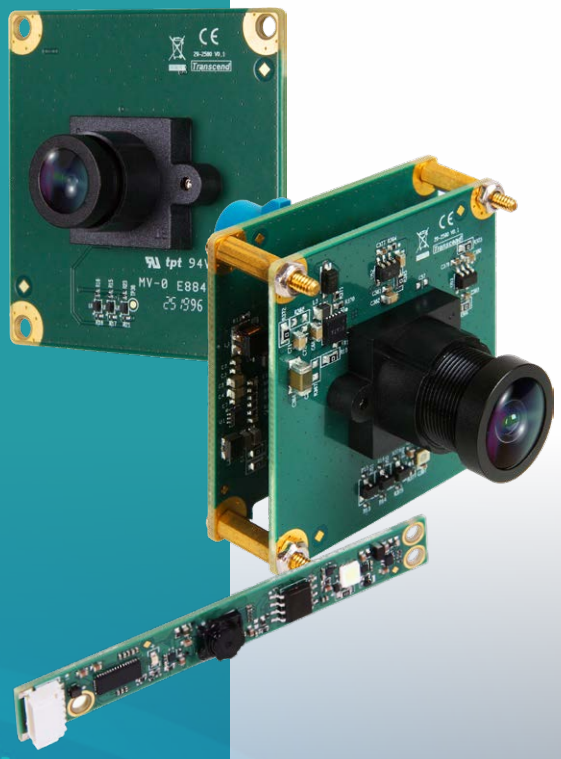
Model	EMC410T	EMC310M
Flash	3D TLC	MLC
Capacity	32GB~64GB	16GB
Operating Temperature	-25°C~85°C	
Performance (Sequential R/W*)	320/235 MB/s	280/100 MB/s
Form Factor	e.MMC5.1 (BGA-153)	
Dimensions	32GB: 11.5 x 13 x 1 mm 64GB: 11.5 x 13 x 0.8 mm	11.5 x 13 x 1 mm
Bus Speed Mode	HS400	
Bus Width Supported	x1, x4, x8	
Clock Frequency Supported	0MHz~200MHz	
Ordering Information	TS32GEMC410T TS64GEMC410T	TS16GEMC310M

R/W: Read/Write

*Value varies by capacity, user hardware, system configuration, and calculation method.

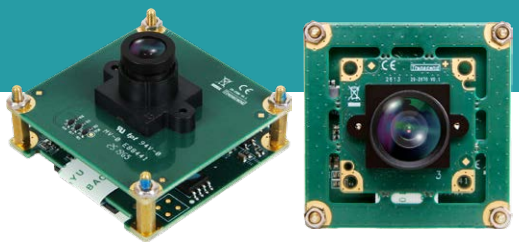
Camera Modules

Transcend leverages imaging expertise to deliver high-performance embedded camera modules designed for seamless integration. Specifically engineered for industrial AI vision, these modules feature advanced low-light sensitivity and Clear HDR technology to ensure superior image clarity for precise decision-making. Ideal for edge AI and high-speed automation, these modules support the low-latency, high-bandwidth transmission essential for AMR & AGV navigation, including SLAM and obstacle avoidance. Furthermore, the flexible design and remote positioning capabilities are perfectly suited for robotic arm guidance and Automated Optical Inspection (AOI) in semiconductor assembly .





Camera Modules



Key Features

High AI Platform Compatibility
Seamlessly supports major operating systems and leading embedded development platforms for rapid deployment.

Intelligent Image Optimization
Built-in auto color, HDR, and sensitivity tuning for clear, AI-ready imaging.

Dedicated ISP Tuning Tool
Customize brightness, contrast, saturation, and more with the ECM ISP Tool.

Compact Modular Design
Small, modular form factor for seamless integration into embedded systems including industrial PCs, POS terminals, and EV chargers.

Flexible Interface Options
Supports MIPI CSI-2, USB 2.0, and GMSL2, with transmission up to 15 meters.

Customization Services
Professional integration and tailored development to meet specific project needs.

Applications

- Industrial PC Vision Systems
- AMR, AGV & AI Robotics
- Drones & UAVs
- Industrial Automation & Machine Vision
- EV Charging Stations
- Self-Service Kiosks & POS Terminals
- Smart Access Control
- Surveillance and Recording Terminals

Strength

- Imaging Expertise in Professional Recording
- Seamless Integration of Modules and Drivers
- Automated Production for Consistent Quality

Output I/F	GMSL2 (FAKRA)		USB 2.0 (5-pin)	USB 2.0 (Type-C)	MIPI CSI-2 (22-pin)	
Sensor	Sony IMX415	Sony IMX675	Galaxycore GC05A2	Galaxycore GC2093	Sony IMX675	Galaxycore GC2093
Resolution	8 MP	5 MP	5 MP	2 MP	5 MP	2 MP
Frame Rate	30 fps	60 fps	60 fps	60 fps	60 fps	60 fps
Viewing Angle	140° (diagonal)	140° (diagonal)	86° (diagonal)	136° (diagonal)	140° (diagonal)	130° (diagonal)
Aperture	f/1.8	f/2.0	f/2.0	f/2.8	f/2.0	f/2.8
Operating Temperature	-30°C (-22°F) ~ 70°C (158°F)		-20°C (-4°F) ~ 70°C (158°F)	-30°C (-22°F) ~ 70°C (158°F)		
Warranty	Three-year Limited Warranty					
Ordering Information	TS-ECM400G2F	TS-ECM300G2F	TS-ECM310U2M	TS-ECM100U2C	TS-ECM300M22	TS-ECM100M22

World-Class Manufacturing Base

Proven Quality

From product development to mass production, Transcend follows rigorous procedures to ensure products deliver advanced reliability and stability. We conduct environmental testing in walk-in chambers where different temperatures and humidity can be simulated. We also carry out full-scale burn-in tests to identify defective components. Certified by ISO 9001, ISO 14001, and QC080000 certifications, we operate our manufacturing process under internationally-acknowledged standards.



High-Speed SMT Lines

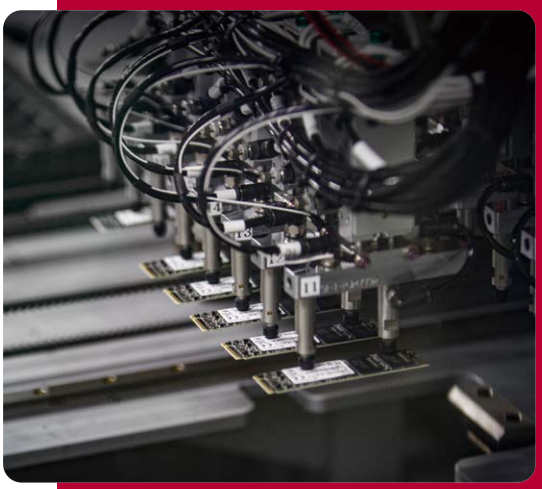
Transcend operates 15 high-speed Surface Mount Technology (SMT) production lines in its Taipei factory. Highly automated facilities are widely implemented to guarantee consistent quality, high capacity, and to minimize human errors.





Quality Control

Transcend adopts a stringent quality control process in production. The process includes four stages: Incoming Quality Control (IQC), In-Process Quality Control (IPQC), Final Quality Control (FQC), and Outgoing Quality Control (OQC). The entire QC process covers material checking at the very beginning, through to final inspection before the products are shipped to our customers.





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EMBEDDED SOLUTIONS

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