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SINCE1994

Professional EMS+ Industrial Memory Expert
Your Best Partner in the IPC Industry
MFi Certified manufacturer

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PROFESSIONAL, QUALITY, SPEED

is our goal to customer service
and our insistence on and commitment to customer satisfaction

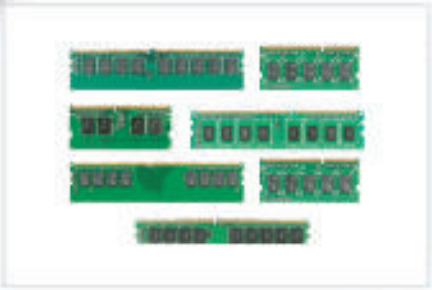
Panram has been marching forward based on the business vision of "Top Quality and Best service" to achieve the goal of being the global leader in providing customers with quality memory module and flash memory solutions.

DRAM, NAND, and relevant applications R&D, manufacturing and distribution.

Providing EMS such as SMT, DIP,assembly, testing, and packing.

Expand our global network, purchasing from international DRAM and NAND suppliers.

Service Items

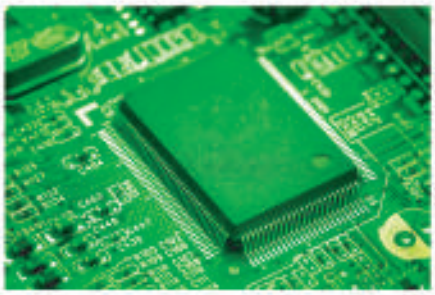


Industry Memory DRAM

For applications in aerospace, defense, and other specialties.

OEM/ODM

Memory module, memory card, USB drive, SSD, peripheral product series, industry grade memory storage, power adapter, WiFi module, and SIP module.



Industry Memory NAND FLASH

NAND, FDM, and SSD.

I/O Card

I/O card with different interfaces addressing expansion of industrial computers.

Major Production Equipment

NXTIII mounter

High efficiency, high compatibility, and high precision surface mounter.

CyberOptics QX500 AOI

Featuring two fixed-angle lightning, this device provides excellent image for fault inspection and helps SMT with fast dynamic inspection.

CyberOptics SE500 SPI

Exclusive and integrated scanning order up powered packaging speed by 30%, optional dual-lightning sensors may improve repetitiveness and enhance validity of SMT production line.

X-Ray

SMT soldering void inspeetion and measurement.

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Brand Spirit

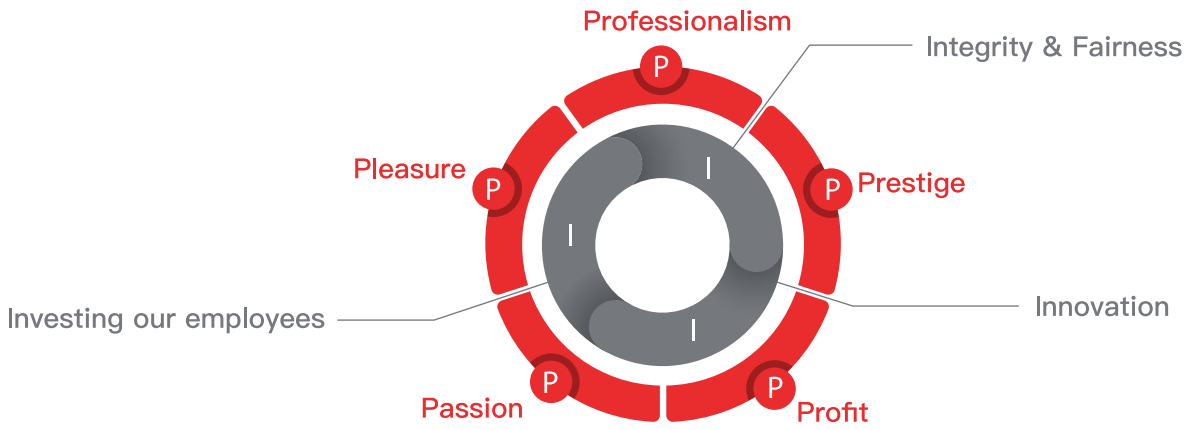
- Founded in 1994, Panram Co., Ltd. (Panram) has been providing customers with customized design, OEM, and ODM services to meet the full spectrum of customer requirements based on its advanced R&D technology and solid manufacturing capacity.
- With "PAN" for all and "RAM" for memory, Panram has memory in its DNA.
- Panram is one of the world leading suppliers of high quality memory modules and flash memory solutions. Thanks to its vision of "best quality and service", it has been marching forward in the memory field.

Production Equipment

- Panram now has 16 high speed SMT lines and 2 DIP lines in operation. It is planning to add to19 SMT lines by the end of 2018 with more automation features.
- Thanks to its in-house developed auto assembly/test equipment and intelligent manufacturing system, Panram has become one of very few ODM service providers for global leading brands. In addition to designing and making memory modules and flash memory, it also offers manufacturing services for a wide range of electronic devices including mechanical keyboards, graphics cards, aesthetic medicine electronics, industry memory modules, touch control panels, and card readers. Panram provides these services in various combinations of hardware design, mold making, DIP, SMT, IC testing and sorting, laser soldering, spot soldering, laser etching, and global logistics.
- Panram is now an MFi-certified manufacturer for Apple's peripheral designing and manufacturing. It's your best partner in the consumer electronics industry.

Quality Service

- Panram has been committed to direct sales from its production site to make the best of inventory with minimized risks of material price fluctuation and fast, on-time delivery by aligning with the comprehensive distribution systems of the courier industry. Panram has won customers' trust for its quality products, fast delivery, and good after service.



Company Overview

Employees: 530
Founded: 1994.02.01
Capital: TWD609 million
OTC enlisted: 2004.02.27 (code 8088)

Contact

Head office: 9th Floor, No. 460, Section 5, Chenggong Road, Neihu District, Taipei City
Factory: No. 2-2, Gongjian South Road, Qidu District, Keelung City (Near Xizhi)
Tel: (02) 2631-8809 ext. 288

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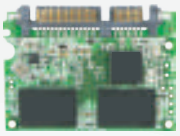
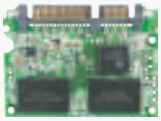
Product Catalog

» SSD

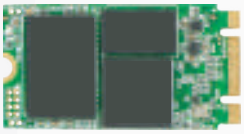
SATA III (SMI)					
Reference Photo					
Formfacter	2.5" SSD	M.2 2242	M.2 2280	mSATA	Half Slim
Capacity	SLC: 4GB~32GB sMLC: 4GB~128GB MLC:8GB~256GB	SLC: 4GB~16GB sMLC:4GB~128GB MLC:8GB~256GB	SLC: 4GB~32GB sMLC:4GB~256GB MLC:8GB~512GB	SLC: 4GB~32GB sMLC: 4GB~64GB MLC:8GB~128GB	SLC: 4GB~32GB sMLC: 4GB~64GB MLC:8GB~128GB
Max. Performance	Read: 500MB/s Write: 300MB/s				
Controller	SM2246EN/XT				

SATA III (Embestor)					
Reference Photo					
Formfacter	2.5"	Half Slim	M.2 2242	mSATA	M.2 2280
Capacity	SLC: coming soon sMLC:16GB~256GB MLC: 32GB~512GB TLC: 64GB~512GB (C.T. only)		SLC: coming soon sMLC: 16GB~128GB MLC: 32GB~256GB TLC: 64GB~512GB (C.T. only)		SLC: coming soon sMLC: 16GB~128GB MLC: 32GB~256GB TLC: 64GB~512GB (C.T. only)
Max. Performance	Read: 500MB/s Write: 400MB/s				
Controller	Embestor ET6311 40nm				

Notes	
	1. SLC is Toshiba 32/24nm 2. sMLC and MLC is SanDisk 15mm 3. 3D TLC is SanDisk Bics3 4. W. T. available unless otherwise marked C. T. only 5. C.T. (0° C-70° C) / W.T. (-40° C-85° C)

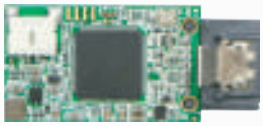
» SSD

SATA III (Enterprise)				
Reference Photo				
Formfacter	2.5”		M.2 2280	
Capacity	Enterprise SSD MLC: 480GB~2TB	Enterprise SSD PRO MLC: 400GB~1600GB	M.2 Enterprise SSD MLC: 480GB~960GB	M.2 Enterprise SSD PRO MLC: 400GB~800GB
Max. Performance	Read: 540MB/s Write: 480MB/s			
Controller	Marvell 88SS1074			

PCI-e (Embestor)		
Reference Photo		
Formfacter	M.2 2242	M.2 2280
Capacity	MLC: 32GB~512GB TLC: 64GB~512GB (C.T.only)	MLC: 32GB~512GB TLC: 64GB~512GB (C.T.only)
Max. Performance	Read: 2400MB/s Write: 1600MB/s	
Controller	Embestor ET7310 / 7312 28nm	

Notes	
	1. SLC is Toshiba 32/24nm 2. sMLC and MLC is SanDisk 15mm 3. 3D TLC is SanDisk Bics3 4. W. T. available unless otherwise marked C. T. only 5. C.T. (0° C-70° C) / W.T. (-40° C-85° C)

» FDM

	eUSB	SATA FDM	IDE FDM
Reference Photo			COMING SOON
Interface	USB2.0	SATA 3.0 Vertical / Horizontal	IDE
Capacity	SLC: 4GB, 8GB,16GB MLC: 16GB,64GB	SLC: 4GB~8GB MLC: 8GB~32GB	SLC: 512MB~32GB MLC: 8GB~64GB
Max. Performance	Read: 33MB/s Write: 20MB/s	Read: 280MB/s Write: 50MB/s	Read: 20MB/s Write: 17MB/s
Controller	SM3268	SM2246XT	SM2232EN
Notes	1. SLC is Toshiba 32/24nm 2. sMLC and MLC is SanDisk 15mm 3. 3D TLC is SanDisk Bics3 4. W. T. available unless otherwise marked C. T. only 5. C.T. (0° C-70° C) / W.T. (-40° C-85° C)		

» CF Card/CFast Card

	CF CARD	SATA III
Reference Photo		
Interface	CF4.1	CFast2.0
Capacity	SLC: 512MB~8GB MLC: 8GB~64GB	SLC: 4GB~32GB MLC: 8GB~128GB sMLC: 4GB~64GB
Max. Performance	Read: 65MB/s Write: 55MB/s	Read: 500MB/s Write: 300MB/s
Controller	SM2232EN	SM2246XT
Notes	1. SLC is Toshiba 32/24nm 2. MLC and sMLC is SanDisk 15mm 3. C. T. (0° C-70° C) / W. T. (-40oC-85° C)	

SD /MicroSD Card

	SD	SDHC	SDXC
Reference Photo			
Interface	SD2.0	SD3.0	SD3.0
Capacity	128MB~2GB	4GB~32GB	64GB~256GB
Max. Performance	Read: 20MB/s Write: 17MB/s	Read: 90MB/s Write: 40MB/s	Read: 90MB/s Write: 70MB/s
Controller	Embestor IT2328/ET1268	Embestor ET1288	Embestor ET1288
Notes	1. Toshiba SLC 32/24nm 2. W. T. (-40℃~85° C)	1. Toshiba SLC 32/24nm 2. SanDisk sMLC/MLC 15mm 3. W. T. (-40℃~85℃) E. T. (-25℃~85℃)	1. SanDisk sMLC/MLC 15nm 2. W. T. (-40℃~85℃) E. T. (-25℃~85℃)

SIP (System in Package)

- The SD using SIP (System in package) module assembly technology which provides perfect protection.
- Each of the SD card can pass severe IPX8 water proof and IP5X dust proof testing level by IEC/EN 60529 standard.

sMLC (Super MLC, single bit per cell MLC support)

- sMLC: Called "Super MLC", which utilizes MLC NAND in single bit per cell to enhance the performance and product endurance.
- Performance: Same level as SLC NAND.
- P/E cycle time: Around 10 times of MLC.
- Density: Half(50%) capacity of MLC NAND.

Security Hidden Card

- Panram's TF & SD card provide Hidden Card mechanism. This mechanism can enhance the data security level.

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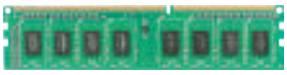
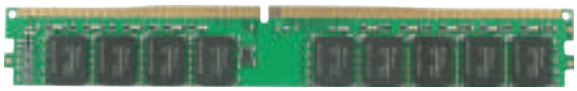
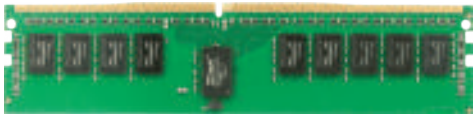
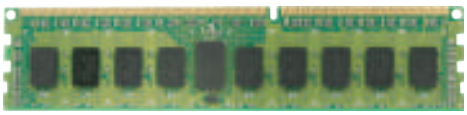
» UDIMM w/wo ECC

Name	DDR4 UDIMM	DDR4 UDIMM w ECC	DDR3 UDIMM	DDR3 UDIMM w ECC
Reference Photo				
Data Rate	2133 / 2400 / 2666 Mbps		1333 / 1600 / 1866 Mbps	
Capacity	2GB / 4GB / 8GB / 16GB	4GB / 8GB / 16GB	1GB / 2GB / 4GB / 8GB	
Voltage	1.2V		1.35V / 1.5V	

» VLP UDIMM w/wo ECC

Name	DDR4 VLP UDIMM w ECC	DDR3 VLP UDIMM w ECC
Reference Photo		
Data Rate	2133 / 2400 / 2666 Mbps	1333 / 1600 / 1866 Mbps
Capacity	4GB / 8GB / 16GB	1GB / 2GB / 4GB / 8GB
Voltage	1.2V	1.35V / 1.5V

» RDIMM

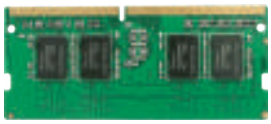
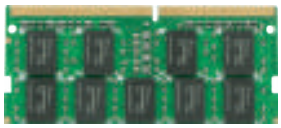
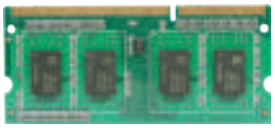
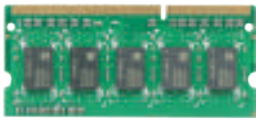
Name	DDR4 RDIMM	DDR3 RDIMM
Reference Photo		
Data Rate	2133 / 2400 / 2666 Mbps	1333 / 1600 / 1866 Mbps
Capacity	4GB / 8GB / 16GB/ 32GB	1GB / 2GB / 4GB / 8GB / 16GB
Voltage	1.2V	1.35V / 1.5V

Notes	1. C.T. (0℃~70℃) / W.T.(-40℃~85℃)。 2. Both C.T.&W.T. available。

» VLP RDIMM

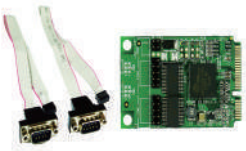
Name	DDR4 VLP RDIMM	DDR3 VLP RDIMM
Reference photo		
Data Rate	2133 / 2400 / 2666 Mbps	1333 / 1600 / 1866 Mbps
Capacity	4GB / 8GB / 16GB	1GB / 2GB / 4GB / 8GB / 16GB
Voltage	1.2V	1.35V / 1.5V

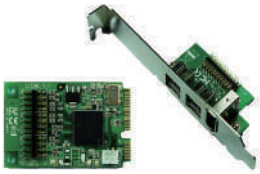
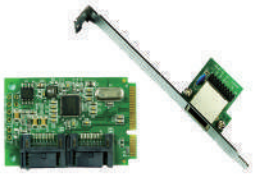
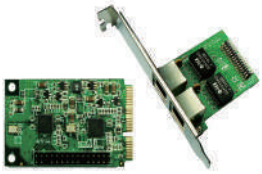
» SODIMM w/wo ECC

Name	DDR4 SODIMM	DDR4 SODIMM w ECC	DDR3 SODIMM	DDR3 SODIMM w ECC
Reference photo				
Data Rate	2133 / 2400 / 2666 Mbps		1333 / 1600 / 1866 Mbps	
Capacity	2GB / 4GB / 8GB / 16GB	4GB / 8GB / 16GB	1GB / 2GB / 4GB / 8GB	
Voltage	1.2V		1.35V / 1.5V	

Notes	1. C.T. (0℃~70℃) / W.T.(-40℃~85℃)。 2. Both C.T.&W.T. available。

» I/O CARD

mini PCI-e				
Reference Photo				
Model Name	EMP0011	EM30021	EM20021	EMS0021
Key Type	Parallel Controller Cards	Serial & Parallel Controller Card	Serial RS232 Controller Card	SATA Controller Card
Form Factor	Mini PCI-e	Mini PCI-e	Mini PCI-e	Mini PCI-e
Chipset ID	Oxford-OXPCIe952	Oxford-OXPCIe952	Oxford-OXPCIe952	Asmedia-ASM1061
Number of Ports	Parallel x1	Parallel x1 RS232 x1	RS232 x2	SATAIII x2
Dimensions	30(W) x 52(L) mm	30(W) x 52(L) mm	30(W) x 52(L) mm	30(W) x 52(L) mm
Operating Temperature	-10℃ to 80℃	-10℃ to 80℃	-10℃ to 80℃	-10℃ to 80℃
OS Compatibility	Windows2000/XP/ 2003/Vista/7	Windows2000/XP/ 2003/Vista/7	Windows2000/XP/ 2003/Vista/7	Windows2000/XP/ 2003/Vista/7

mini PCI-e				
Reference Photo				
Model Name	EM10011	EML0011	EML0021	EMU0021
Key Type	Firewire Controller Card	Network Card	Network Card	USB 3.0 Controller Card
Form Factor	Mini PCI-e	Mini PCI-e	Mini PCI-e	Mini PCI-e
Chipset ID	Texas-Instruments-XIO2213B	Realtek-RTL8111E	Realtek-RTL8111E	Renasas-μPD720202
Number of Ports	1394b x2 1394a x1	Giga Lan x1	Giga Lan x2	USB3.0 x2
Dimensions	30(W) x 52(L) mm	30(W) x 52(L) mm	30(W) x 52(L) mm	30(W) x 52(L) mm
Operating Temperature	0℃ to 70℃	-10℃ to 80℃	-10℃ to 80℃	-10℃ to 80℃
OS Compatibility	Windows2000/XP/ 2003/Vista/7	Windows2000/XP/ 2003/Vista/7	Windows2000/XP/ 2003/Vista/7	Windows2000/XP/ 2003/Vista/7

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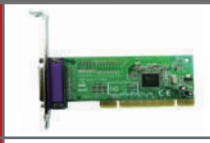
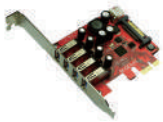
PCI

Reference Photo						
Model Name	EIP0011	EI20011	EI20021	EIU0041	EIL0011	EIU0021
Key Type	Parallel Controller Cards	Serial RS232 Controller Card	Serial RS232 Controller Card	USB 3.0 Controller Card	Network Card	USB 3.0 Controller Card
Form Factor	PCI	PCI	PCI	PCI	PCI	PCI
Chipset ID	Moschip -mcs9865	Moschip -mcs9865	Moschip -mcs9865	Renesas (NEC uPD720201)	Realtek RTL8169SC	Renesas (NEC UPD720202)
Number of Ports	Parallel x1	RS232 x1	RS232 x2	USB3.0 x4	Giga Lan x1	USB3.0 x2
Dimensions	55(W) x 120(L) mm	55(W) x 120(L) mm	55(W) x 120(L) mm	121mm x 134mm x 22mm	121mm x 134mm x 22mm	121mm x 134mm x 22mm
Operating Temperature	-10℃ to 80℃	-10℃ to 80℃	-10℃ to 80℃	-10℃ to 80℃	-10℃ to 80℃	-10℃ to 80℃
OS Compatibility	Windows 2000/ XP/2003/Vista/7	Windows 2000/ XP/2003/Vista/7	Windows 2000/ XP/2003/Vista/7	Windows 2000/ XP/2003/Vista/7	Windows 32bit / 64bit / Mac OS	Win 7 ,Win 8 ,Win 10 Server 2012, Vista, XP and Linux

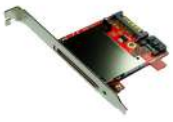
PCI-e

Reference Photo				
Model Name	EE40021	EEP0011	EE20011	EE20021
Key Type	Serial RS422/485 Controller Card	Parallel Controller Cards	Serial RS232 Controller Card	Serial RS232 Controller Card
Form Factor	PCIe	PCIe	PCIe	PCIe
Chipset ID	Systembase-1052	Moschip-mcs9901CV-CC	Moschip-MCS9922CV-AA	Moschip-MCS9922CV-AA
Number of Ports	RS422/485 x2	Parallel x1	RS232 x1	RS232 x2
Dimensions	70(W) x 96(L) mm	67(W) x 99(L) mm	68(W) x 99(L) mm	67(W) x 99(L) mm
Operating Temperature	-10℃ to 80℃	-10℃ to 80℃	-10℃ to 80℃	-10℃ to 80℃
OS Compatibility	Windows 2000/XP/2003/Vista/7			

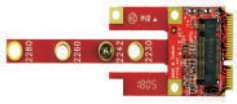
PCI-e

Reference Photo					
Model Name	EEL0011	EES0R21	EES0R41	EEU0021	EEU0041
Key Type	Network Card	SATA RAID Controller Card	SATA RAID Controller Card	USB 3.0 Controller Card	USB 3.0 Controller Card
Form Factor	PCIe	PCIe	PCIe	PCIe	PCIe
Chipset ID	Realtek RTL8168E	Marvell 88SE9128	Marvell 88SE9230	Renesas (NEC UPD720202)	Renesas (NEC uPD720201)
Number of Ports	Giga Lan x1	SATAIII x2	SATAIII x4	USB3.0 x2	USB3.0 x4
Dimensions	121mm x 79.3mm x 22mm	121mm x 79.3mm x 22mm	121mm x 84mm x 22mm	121mm x 79.3mm x 22mm	121mm x 89mm x 22mm
Operating Temperature	-10℃ to 80℃	0℃ - 85℃	-10℃ to 80℃	-10℃ to 80℃	-10℃ to 80℃
OS Compatibility	Win 7 ,Win 8 ,Win 10, 2008, 2012, Vista, XP, 2003 and Mac OS				

Others Products

Reference Photo					
Model Name	ESF0011	ESC0011	EEM0011	EEG0012	EEG0011
Key Type	SATA to CFAST Reader	SATA to CF Reader	Mini PCI-e to PCIe x1 card	M.2 B Key to PCIe	M.2 NVMe SSD to PCIe 3.0 x4 Card
Form Factor	SATA	SATA	PCIe	PCIe	PCIe 3.0 x4
Number of Ports	CFAST	CF card x1	MiniPCIe x1	M.2 B Key and B-M Key x1 Micro-SIM card slot x1	M.2 NVMe SSD x1
Dimensions	121mm x 78.1mm x 22mm	121mm x 81mm x 22mm	121mm x 88mm x 22mm	121mm x 84mm x 22mm	121mm x 179mmx 22mm
Operating Temperature	-10℃ to 80℃	-10℃ to 80℃	-10℃ to 80℃	-40℃ to 80℃	-40℃ to 80℃
OS Compatibility	Windows, MAC and Linux				
Notes	–	–	1. Such as Wireless Module 2. Support PCIe based MiniPCIe Card and USB2.0 based MiniPCIe Card	–	–

Others Products

Reference Photo				
Model Name	EMG0012	EMG0011	ESM0011	ESGM021
Key Type	M.2 E Key to miniPCIe	M.2 B Key to miniPCIe card	mSATA to 2.5 " SATA Drive	mSATA or M.2 SSD to 2.5 " SATA Drive
Form Factor	MiniPCIe	MiniPCIe	2.5 " SATA	2.5 " SATA
Number of Ports	M.2 E Key	M.2 B Key and B-M Key x1 Micro-SIM card slot x1	mSATA x1	M.2 B Key and B-M Key x1 mSATA x1
Dimensions	30mm x 54.5mm x 7mm	30mm x 93.5mmx 7mm	100.45mm x 69.85mm x 7mm	100.45mm x 69.85mm x 7mm
Operating Temperature	-40℃ to 80℃	-40℃ to 80℃	-40℃ to 85℃	-10℃ to 80℃
OS Compatibility	Windows, MAC and Linux			
Notes	1. Support M.2 wireless module that USB base and PCIe base.	1. Such as WWAN (CDMA, GPS, LTE) Module	–	–

Others Products

Reference Photo				
Model Name	ESG0011	ESM0R21	ESG0R21	E2G0011
Key Type	M.2 SATA SSD to 2.5 " SATA Drive	mSATA to 2.5 " SATA RAID Drive	M.2 SATA SSD to 2.5 " SATA RAID Drive	M.2 NVMe SSD to NVMe U.2 2.5" SSD Drive
Form Factor	2.5 " SATA	2.5 " SATA	2.5 " SATA	U.2 2.5 "
Chipset ID	–	Jmicron JMS562	Asmedia ASM1092R	–
Number of Ports	M.2 SATA SSD x1	mSATA x2	M.2 SATA SSD x2	M.2 NVMe SSD x1
Dimensions	100.45mm x 69.85mm x 7mm	100.45mm x 69.85mm x 7mm	100.45mm x 69.85mm x 7mm	100.45mm x 69.85mm x 7mm
Operating Temperature	-10℃ to 80℃	-10℃ to 80℃	-10℃ to 80℃	-10℃ to 80℃
OS Compatibility	Windows, MAC and Linux			

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SMT Operation Flow

- Solder Paste Printer
- Solder Paste Inspection
- High Speed Mounter
- Reflow
- In-line AOI
- Visual Inspection
- De-panel

DIP Operation Flow

- Parts Processing Prior to Insertion
- Auto Switch
- Parts Insertion Wave Solder Machine
- Auto Key Cap
- Assembly
- Laser
- Packaging
- AOI

Environment & Quality Policy

Quality Policy

- Fast delivery, reliable quality, customer satisfaction.

Occupational Health & Environment Policy

- **Continuous Improvements:**
  Improve the operation environment and ensure industrial safety and health.
- **Labor Safety:**
  Stress factory facilities safety to protect labor safety.
- **Smoking Prevention:**
  Committed to workplace smoking prevention and health promotion, certified healthy workplace.

Environment Quality Commitment

- **Regulations Compliance:**
  Conform to regulations abide by government environment protection regulations actively.
- **Pollution prevention:**
  Continuously reduce energy consumption to mitigate impact on environment safety
- **Save Energy:**
  Improve energy electric and recycle every bit of reusable

GOOD SERVICE

- Thanks to team efforts by excellent R&D, manufacturing and QC, Panram has won ISO9001 certification and globally-recognized product quality.
- Panram has been committed to direct sale from its production site to make the best inventory with minimized risks of material price fluctuation and fast, on-time delivery by aligning with the comprehensive distribution systems of the courier industry.

PROFESSIONAL & CUSTOMIZED

- Provide customers with the best specialty technology.
- Provide customers with a full range of services including product design, material sourcing, logistics management, shipping, product test, and maintenance to help customer in respond quickly to market demands by combining the manufacturing process, profession management skill, and global logistics.

COOPERATION

- Maintain good partnerships with suppliers.
- Panram has good relationships with major suppliers of DRAM and flash memory ICs.

Quality Certification

ISO 9001:2015

OHSAS 18001:2007

ISO 14001:2015

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