Apacer

The
Most **Reliable** Memory
For Industries

Industrial DRAM Solutions

industrial.apacer.com

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Why Apacer

Professional Technique

- Strong HW/FW engineering know-how
- Customized design with a variety of memory solutions
- State-of-the-art technology

Quality Assurance

- 100% reliable & compliant
  Wide temperature test
  Strict ORT (Ongoing Reliability Test)
  Power cycle test
  Humidity test
  Reliability test (Vibration/Shock)

Extensive Experience

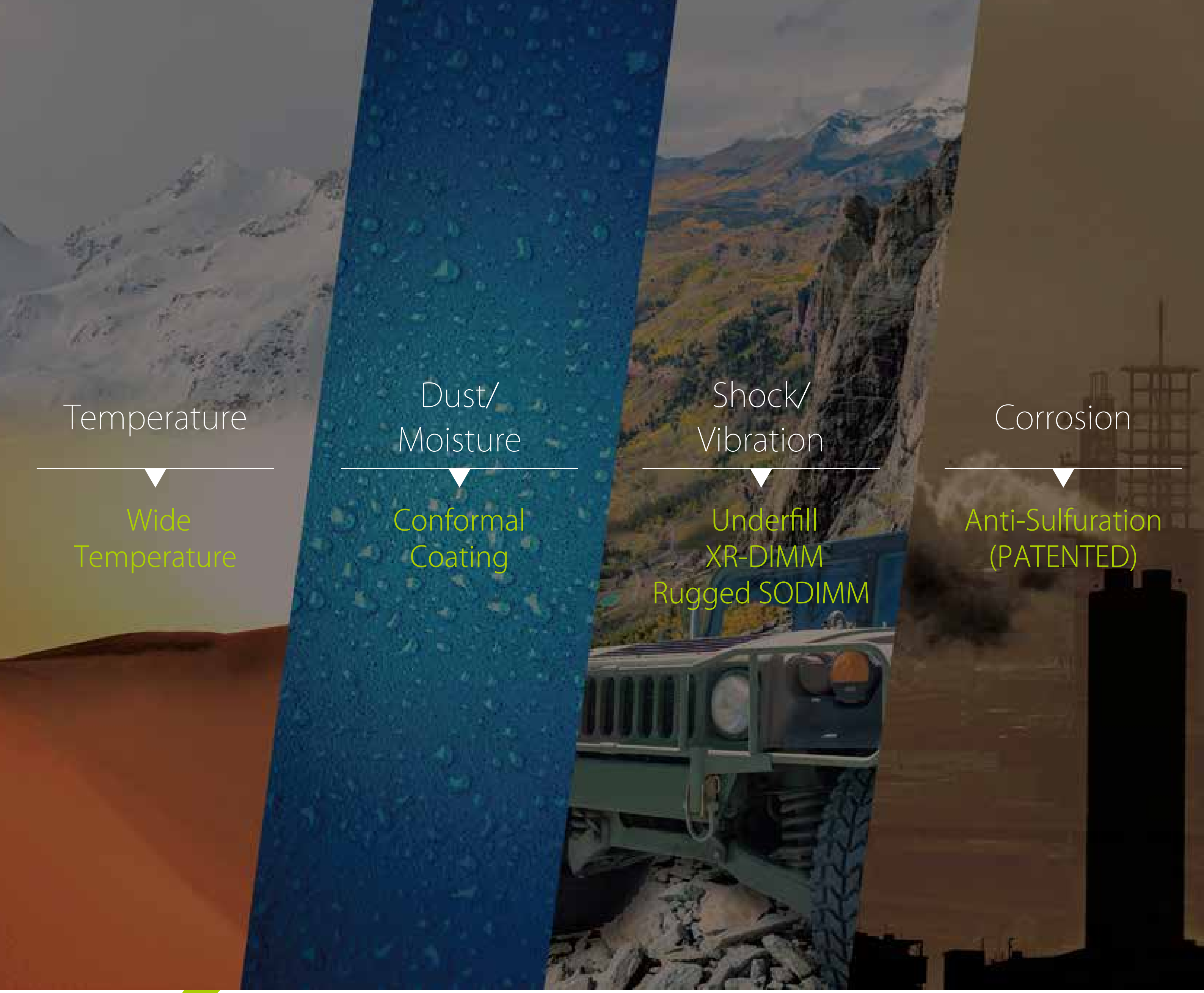
- Tier 1 industrial SSD & memory supplier; delivered over 135 million units
- Comprehensive experience in product customization (across industries)

Reliable Service

- Fixed BOM solution
- Longevity of supply, EOL and last time buy notice

Longevity Commitment

- A global-scale service and maintenance system
- Responsive local FAE technical support
- 24/7 flexible and quick delivery service
- Complete RMA system



Temperature
Wide Temperature

Dust/ Moisture
Conformal Coating

Shock/ Vibration
Underfill
XR-DIMM
Rugged SODIMM

Corrosion
Anti-Sulfuration (PATENTED)

Solutions for Extreme Environments

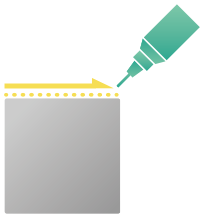
Nowadays, as industrial memory products have been widely used in various kinds of applications, the need for memory modules that can maintain highly stable operating performance in harsh conditions is remarkably increasing.

As an industrial solution veteran and leading memory brand, Apacer always takes an outside-in perspective and strives for new breakthroughs, providing many value-added solutions and technologies for extreme environments to ensure product reliability, stability and durability.

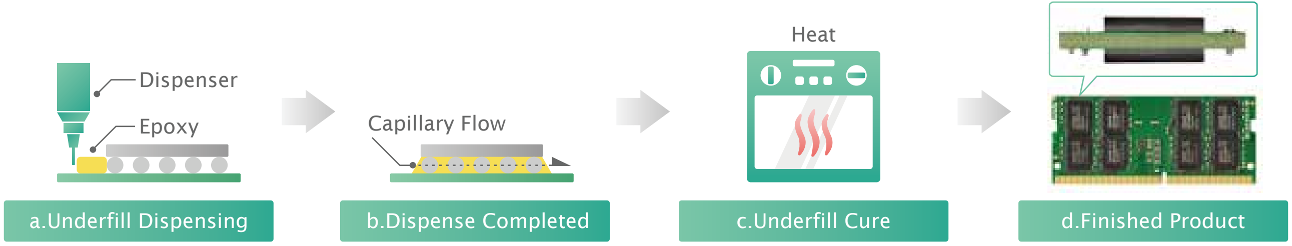
Technologies and Advantages

Underfill

Apacer provides underfill technology to increase product reliability and resistance to various thermal and mechanical shocks, ensuring that products continue to operate normally in high vibration and under extreme changes in environmental temperature.



- **Strengthens the solder joints between solder balls and printed circuit board**
- **Increases the product's resistance against shock and vibration**
- **Reduces thermal stress damage**
- **Complies with MIL-STD-810G shock and vibration requirements**
- **Increases product reliability and lifespan**



Anti-Sulfuration

Anti-sulfuration memory modules are mainly used in equipment exposed in highly contaminated environment.

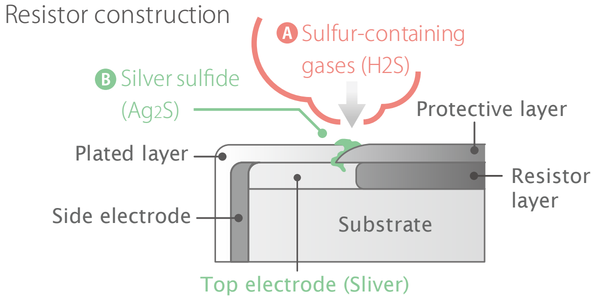
- **World's first anti-sulfuration memory modules**
- **Solves corrosion problems effectively and increases overall system lifespan**
- **Ensures product reliability and durability**
- **Widely recognized and awarded patents in many countries**

Widely recognized and awarded patents

	Date	No.
China	2016/10/12	201620478703.X
USA	2017/4/11	US9,622,337
Taiwan	2017/9/11	I598878

Ag$_2$S Formation

Resistor construction

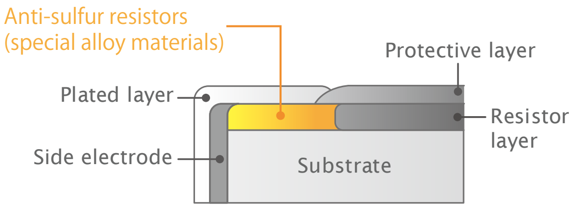


Ⓐ **High concentration of airborne sulfur-containing particles enters gaps in the resistor.**

Ⓑ **Silver used in the electrode reacts with sulfur to form silver sulfide (Ag$_2$S) which is non-conductive, leading to open circuit failure.**

Apacer's anti-sulfuration technology

Resistor construction

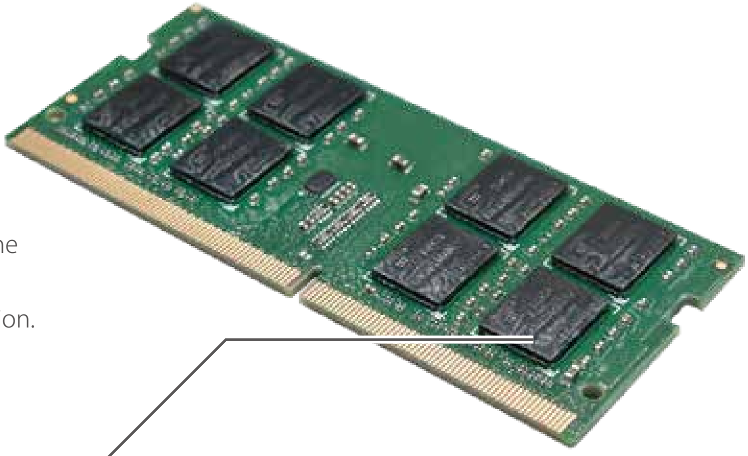


Apacer awarded patent for anti-sulfuration memory solves sulfur corrosion problems effectively.

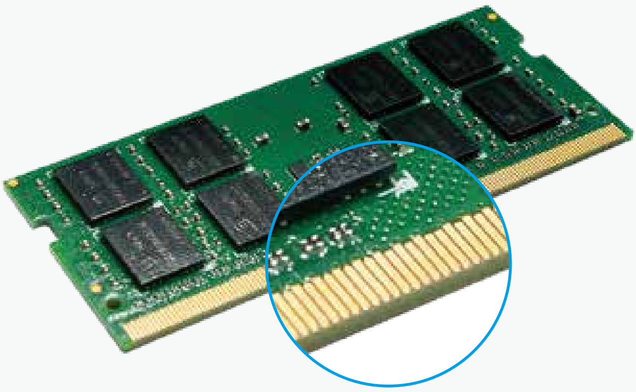
Conformal Coating

Enhances reliability of products by applying coatings on the surface of printed circuit boards. The protective film can safeguard devices from dust ingression and liquid immersion.

- **Uses automated spraying to maintain precise coating thickness**
- **Enhances product reliability**
- **Prolongs DRAM modules lifespan**



Apacer DRAM module with conformal coating

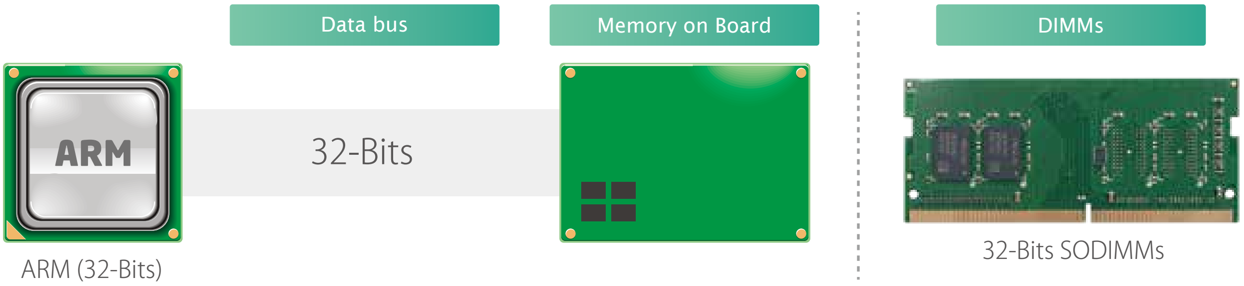


30μ Gold Finger

With the 30μ gold plating, the connector interface is more reliable and can withstand the potential damages in industrial applications.

32-Bits SODIMM Application

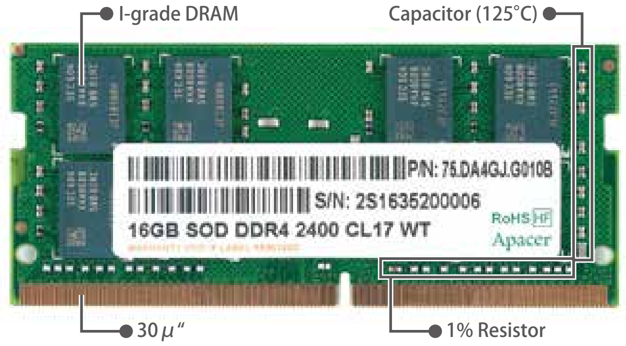
Mainly supports the ARM architecture. Unlike the 64-bit memory module that supports x86 system, the unique 32-bit SODIMM provides the 32-bit ARM architecture with another design option besides on-board memory.



Wide Temperature

Especially designed for harsh climates and special environmental conditions.

- **Operating temperature range: -40 °C ≤ TC ≤ 85°C**
- **All industrial-grade components (DRAM, resistors and capacitors) ensure stability and reliability**
- **High/Low temp. test / Temp.cycling test**
- **Power cycling test**



All industrial-grade DRAM components

Component	Wide Temperature (Industrial)	Standard (Commercial)
DRAM	Industrial-grade (-40°C ~ 85°C)	Commercial-grade (0°C ~ 85°C)
PCB gold finger	30µ"	3µ"
Resistor	± 1% tolerance	± 5% tolerance
Capacitor	125°C	85°C

Extremely Rugged XR-DIMM

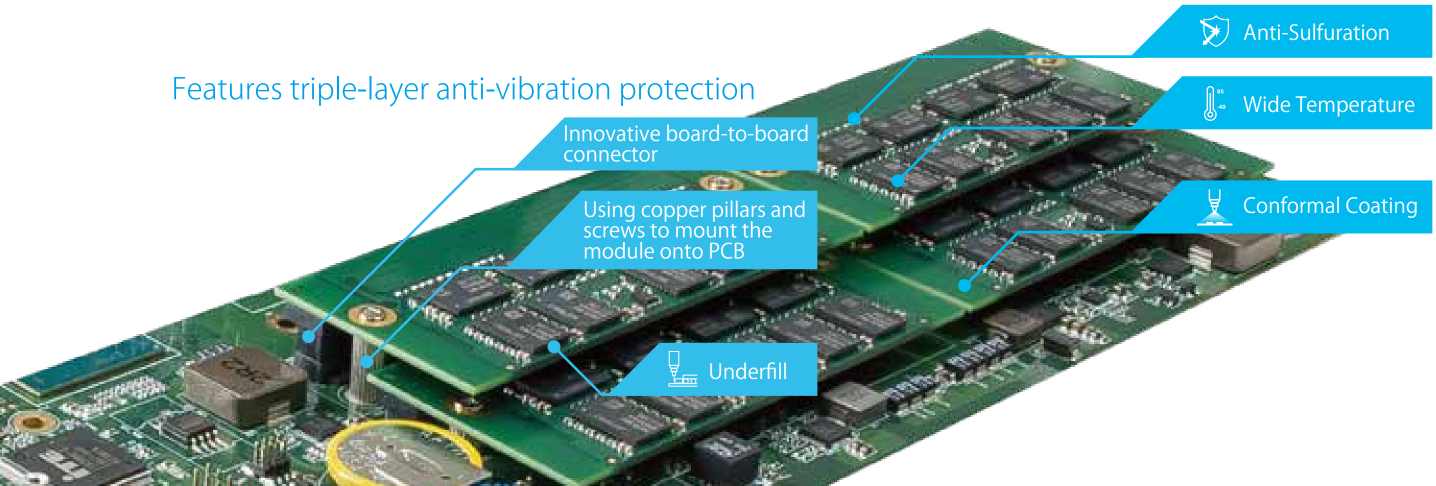
- **Innovative board-to-board connector design**
- **Adopts highly durable 300-pin connector and mounting holes to improve the anti-vibration and anti-shock reliability**
- **Supports multiple protection technologies and value-added applications**

Rugged Memory Comparison

	XR-DIMM Rugged Memory	Onboard memory
Anti-shock & anti-vibration ability	Great	Great
Memory upgradability	Yes	No
Repair difficulty	Easy	Difficult
RMA cost	Low	High
Stackable design	Yes	No
Motherboard space usage	Flexible	Uniformed and inflexible

Supports multiple value-added applications

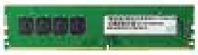
Features triple-layer anti-vibration protection



Embedded

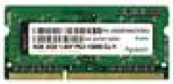
UDIMM (Unbuffered DIMM)

- JEDEC-compliant design
- Applicable for desktop computers, industrial computers and embedded systems

UDIMM				
Model	**DDR4 UDIMM**	**DDR3 UDIMM**	**DDR2 UDIMM**	**DDR UDIMM**
Module Type	UDIMM	UDIMM	UDIMM	UDIMM
Memory Technology	DDR4	DDR3	DDR2	DDR
Frequency	2133/2400/2666	1066/1333/1600/1866	533/667/800	266/333/400
Density	2G/4G/8G/16G	1G/2G/4G/8G/16G	512M/1G/2G/4G	512M/1G
Voltage	1.2v	1.5v/1.35v	1.8v	2.5v/2.6v
Pin Count	288-Pin	240-Pin	240-Pin	184-Pin
Width	64-Bit	64-Bit	64-Bit	64-Bit
PCB Height	1.23"	1.18"	1.18"	1.25"
Operation Temperature	TC=0℃ to 85℃	TC=0℃ to 85℃	TC=0℃ to 85℃	TA=0℃ to 70℃
Application	Embedded & IPC / Gaming			
Value-Added	Underfill Conformal Coating	Underfill Conformal Coating	Underfill Conformal Coating	Conformal Coating

SODIMM (Small Outline DIMM)

- JEDEC-compliant design
- Applicable for space-constraint systems, such as notebook computers, small-size industrial computers and embedded systems

SODIMM				
Model	**DDR4 SODIMM**	**DDR3 SODIMM**	**DDR2 SODIMM**	**DDR SODIMM**
Module Type	SODIMM	SODIMM	SODIMM	SODIMM
Memory Technology	DDR4	DDR3	DDR2	DDR
Frequency	2133/2400/2666	1066/1333/1600/1866	533/667/800	266/333/400
Density	2G/4G/8G/16G	1G/2G/4G/8G/16G	512M/1G/2G/4G	256M/512M/1G
Voltage	1.2v	1.5v/1.35v	1.8v	2.5v/2.6v
Pin Count	260-Pin	204-Pin	200-Pin	200-Pin
Width	64-Bit	64-Bit	64-Bit	64-Bit
PCB Height	1.18"	1.18"	1.18"	1.25"
Operation Temperature	TC=0℃ to 85℃	TC=0℃ to 85℃	TC=0℃ to 85℃	TA=0℃ to 70℃
Application	Transportation / Embedded & IPC / Gaming / Healthcare			
Value-Added	Underfill Conformal Coating	Underfill Conformal Coating	Underfill Conformal Coating	Underfill Conformal Coating

Server/Workstation

RDIMM (ECC Registered DIMM)

- Supports ECC error detection and correction
- Supports a built-in temperature-monitoring thermal sensor
- Applicable for enterprise servers and cloud data centers

RDIMM			
Model	**DDR4 RDIMM**	**DDR3 RDIMM**	**DDR2 RDIMM**
Module Type	RDIMM	RDIMM	RDIMM
Memory Technology	DDR4	DDR3	DDR2
Frequency	2133/2400/2666	1066/1333/1600/1866	533/667/800
Density	4G/8G/16G/32G/64G	1G/2G/4G/8G/16G	512M/1G/2G/4G
Voltage	1.2v	1.5v/1.35v	1.8v
Pin Count	288-Pin	240-Pin	240-Pin
Width	72-Bit	72-Bit	72-Bit
PCB Height	1.23"	1.18"	1.18"
Operation Temperature	TC=0℃ to 85℃	TC=0℃ to 85℃	TC=0℃ to 85℃
Application	Cloud Computing / IoT / Healthcare		
Value-Added	Thermal Sensor 30μ Gold Finger Underfill Conformal Coating	Thermal Sensor 30μ Gold Finger Underfill Conformal Coating	30μ Gold Finger Underfill Conformal Coating

LRDIMM (Load Reduced DIMM)

- Allows more memory capacities per channel than RDIMM
- Supports ECC error detection and correction
- Supports a built-in temperature-monitoring thermal sensor
- Applicable for enterprise servers and cloud data centers

LRDIMM	
Model	**DDR4 LRDIMM**
Module Type	LRDIMM
Memory Technology	DDR4
Frequency	2133/2400/2666
Density	32G/64G
Voltage	1.2v
Pin Count	288-Pin
Width	72-Bit
PCB Height	1.23"
Operation Temperature	TC=0℃ to 85℃
Application	Cloud Computing / IoT / Healthcare
Value-Added	Thermal Sensor 30μ Gold Finger Underfill Conformal Coating

Server/Workstation

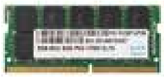
ECC UDIMM (ECC Unbuffered DIMM)

- Supports ECC error detection and correction
- Supports a built-in temperature-monitoring thermal sensor
- Applicable for servers and workstations that require highly stable operation

ECC UDIMM			
Model	**DDR4 ECC UDIMM**	**DDR3 ECC UDIMM**	**DDR2 ECC UDIMM**
Module Type	ECC UDIMM	ECC UDIMM	ECC UDIMM
Memory Technology	DDR4	DDR3	DDR2
Frequency	2133/2400/2666	1066/1333/1600/1866	533/667/800
Density	4G/8G/16G	1G/2G/4G/8G/16G	512M/1G/2G/4G
Voltage	1.2v	1.5v/1.35v	1.8v
Pin Count	288-Pin	240-Pin	240-Pin
Width	72-Bit	72-Bit	72-Bit
PCB Height	1.23"	1.18"	1.18"
Operation Temperature	TC=0℃ to 85℃	TC=0℃ to 85℃	TC=0℃ to 85℃
Application	Cloud Computing / IoT / Embedded & IPC / Healthcare		
Value-Added	Thermal Sensor 30μ Gold Finger Underfill Conformal Coating	Thermal Sensor 30μ Gold Finger Underfill Conformal Coating	30μ Gold Finger Underfill Conformal Coating

ECC SODIMM (ECC Small Outline DIMM)

- Supports ECC error detection and correction
- Supports a built-in temperature-monitoring thermal sensor
- Applicable for microservers, workstations, networking platforms and embedded systems

ECC SODIMM				
Model	**DDR4 ECC SODIMM**	**DDR3 ECC SODIMM**	**DDR2 ECC SODIMM**	**DDR ECC SODIMM**
Module Type	ECC SODIMM	ECC SODIMM	ECC SODIMM	ECC SODIMM
Memory Technology	DDR4	DDR3	DDR2	DDR
Frequency	2133/2400/2666	1066/1333/1600/1866	533/667/800	266/333/400
Density	4G/8G/16G	1G/2G/4G/8G/16G	512M/1G/2G/4G	512M/1G
Voltage	1.2v	1.5v/1.35v	1.8v	2.5v/2.6v
Pin Count	260-Pin	204-Pin	200-Pin	200-Pin
Width	72-Bit	72-Bit	72-Bit	72-Bit
PCB Height	1.18"	1.18"	1.18"	1.25"
Operation Temperature	TC=0℃ to 85℃	TC=0℃ to 85℃	TC=0℃ to 85℃	TA=0℃ to 70℃
Application	Cloud Computing / IoT / Transportation /Embedded & IPC / Healthcare			
Value-Added	Thermal Sensor 30μ Gold Finger Underfill Conformal Coating	Thermal Sensor 30μ Gold Finger Underfill Conformal Coating	30μ Gold Finger Underfill Conformal Coating	30μ Gold Finger Underfill Conformal Coating

Very Low Profile

VLP UDIMM (Very Low Profile Unbuffered DIMM)

- Measures only 0.72~0.738-inch in height
- Prevents mechanical issues, and improves heat dissipation
- Applicable for space-constraint systems, such as small-size industrial computers and embedded systems

VLP UDIMM			
Model	**DDR4 VLP UDIMM**	**DDR3 VLP UDIMM**	**DDR2 VLP UDIMM**
Module Type	VLP UDIMM	VLP UDIMM	VLP UDIMM
Memory Technology	DDR4	DDR3	DDR2
Frequency	2133/2400//2666	1066/1333/1600	533/667/800
Density	4G/8G/16G	1G/2G/4G/8G	512M/1G/2G/4G
Voltage	1.2v	1.5v/1.35v	1.8v
Pin Count	288-Pin	240-Pin	240-Pin
Width	64-Bit	64-Bit	64-Bit
PCB Height	0.738"	0.738"	0.72"
Operation Temperature	TC=0℃ to 85℃	TC=0℃ to 85℃	TC=0℃ to 85℃
Application	Embedded & IPC		
Value-Added	Underfill Conformal Coating	Underfill Conformal Coating	Underfill Conformal Coating

VLP SODIMM (Very Low Profile SODIMM) / VLP ECC SODIMM (Very Low Profile ECC SODIMM)

- Measures only 0.7~0.709-inch in height
- Saves up to 40% board space
- Applicable for space-constrain systems, such as small form-factor industrial computers and embedded systems

VLP SODIMM / VLP ECC SODIMM		
Model	**DDR4 VLP SODIMM**	**DDR4 VLP ECC SODIMM**
Module Type	VLP SODIMM	VLP ECC SODIMM
Memory Technology	DDR4	DDR4
Frequency	2133/2400/2666	2133/2400/2666
Density	4G/8G	4G/8G
Voltage	1.2V	1.2V
Pin Count	260-Pin	260-Pin
Width	64-Bit	72-Bit
PCB Height	0.709"	0.7"
Operation Temperature	TC=0℃ to 85℃	TC=0℃ to 85℃
Application	Transportation / Embedded & IPC / Gaming / Healthcare	Cloud Computing / IoT / Transportation / Embedded & IPC / Healthcare
Value-Added	30μ Gold Finger Underfill Conformal Coating	Thermal Sensor 30μ Gold Finger Underfill Conformal Coating

Very Low Profile

VLP RDIMM (Very Low Profile Registered DIMM)

- Measures only 0.738-inch in height
- Prevents mechanical issues, and improves heat dissipation
- Supports ECC error detection and correction
- Supports a built-in temperature-monitoring thermal sensor
- Applicable for space-constraint systems and systems that require high stability, such as blade servers, 1U rack servers and various embedded systems.

VLP RDIMM		
Model	**DDR4 VLP RDIMM**	**DDR3 VLP RDIMM**
Module Type	VLP RDIMM	VLP RDIMM
Memory Technology	DDR4	DDR3
Frequency	2133/2400/2666	1066/1333/1600
Density	4G/8G/16G	1G/2G/4G/8G
Voltage	1.2v	1.5v/1.35v
Pin Count	288-Pin	240-Pin
Width	72-Bit	72-Bit
PCB Height	0.738"	0.738"
Operation Temperature	TC=0℃ to 85℃	TC=0℃ to 85℃
Application	Cloud Computing / IoT / Healthcare	
Value-Added	Thermal Sensor 30μ Gold Finger Underfill Conformal Coating	Thermal Sensor 30μ Gold Finger Underfill Conformal Coating

VLP ECC UDIMM (Very Low Profile ECC Unbuffered DIMM)

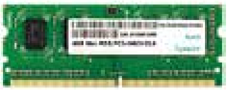
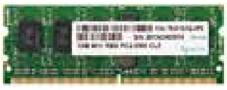
- Measures only 0.72~0.738-inch in height
- Prevents mechanical issues, and improves heat dissipation
- Supports ECC error detection and correction
- Supports a built-in temperature-monitoring thermal sensor
- Applicable for space-constraint systems, servers and workstations that require high stability

VLP ECC UDIMM			
Model	**DDR4 VLP ECC UDIMM**	**DDR3 VLP ECC UDIMM**	**DDR2 VLP ECC UDIMM**
Module Type	VLP ECC UDIMM	VLP ECC UDIMM	VLP ECC UDIMM
Memory Technology	DDR4	DDR3	DDR2
Frequency	2133/2400/2666	1066/1333/1600	533/667/800
Density	4G/8G/16G	1G/2G/4G/8G	512M/1G/2G
Voltage	1.2v	1.5v/1.35v	1.8v
Pin Count	288-Pin	240-Pin	240-Pin
Width	72-Bit	72-Bit	72-Bit
PCB Height	0.738"	0.738"	0.72"
Operation Temperature	TC=0℃ to 85℃	TC=0℃ to 85℃	TC=0℃ to 85℃
Application	Cloud Computing / IoT / Embedded & IPC / Healthcare		
Value-Added	Thermal Sensor 30μ Gold Finger Underfill Conformal Coating	Thermal Sensor 30μ Gold Finger Underfill Conformal Coating	30μ Gold Finger Underfill Conformal Coating

Mini DIMM

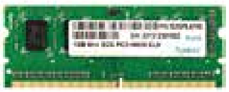
Mini RDIMM

- Supports a built-in temperature-monitoring thermal sensor
- High capacity, high performance and high stability
- Supports ECC error detection and correction
- Measures only 80~82mm long
- Applicable for space-constraint networking, communication, server and embedded system

Mini RDIMM			
Model	**DDR4 Mini RDIMM**	**DDR3 Mini RDIMM**	**DDR2 Mini RDIMM**
Module Type	(VLP) Mini RDIMM	Mini RDIMM	Mini RDIMM
Memory Technology	DDR4	DDR3	DDR2
Frequency	2133/2400/2666	1066/1333/1600	533/667
Density	4GB/8GB/16GB	1G/2G/4G/8G	512M/1G
Voltage	1.2v	1.5v/1.35v	1.8v
Pin Count	288-Pin	244-Pin	244-Pin
Width	72-Bit	72-Bit	72-Bit
PCB Height	0.738"/1.23"	1.181"	1.181"
Operation Temperature	TC=0℃ to 85℃	TC=0℃ to 85℃	TC=0℃ to 85℃
Application	Cloud Computing / IoT / Embedded & IPC		
Value-Added	Thermal Sensor 30μ Gold Finger Underfill Conformal Coating	Thermal Sensor 30μ Gold Finger Underfill Conformal Coating	30μ Gold Finger Underfill Conformal Coating

Mini ECC UDIMM

- Supports a built-in temperature-monitoring thermal sensor
- High capacity, high performance and high stability
- Supports ECC error detection and correction
- Measures only 80~82mm long
- Applicable for space-constraint networking, communication, server and embedded systems

Mini ECC UDIMM		
Model	**DDR4 VLP Mini ECC UDIMM**	**DDR3 Mini ECC UDIMM**
Module Type	VLP Mini ECC UDIMM	VLP Mini ECC UDIMM
Memory Technology	DDR4	DDR3
Frequency	2133/2400/2666	1066/1333/1600
Density	4G/8G/16G	1G/2G/4G
Voltage	1.2v	1.5v/1.35v
Pin Count	288-Pin	244-Pin
Width	72-Bit	72-Bit
PCB Height	0.738"	0.738"
Operation Temperature	TC=0℃ to 85℃	TC=0℃ to 85℃
Application	Cloud Computing / IoT / Embedded & IPC	
Value-Added	Thermal Sensor 30μ Gold Finger Underfill Conformal Coating	Thermal Sensor 30μ Gold Finger Underfill Conformal Coating

Wide Temperature

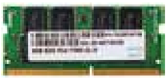
Wide Temp UDIMM (Wide Temperature UDIMM)

- Able to operate in temperatures ranging from -40℃ to 85℃
- Uses industrial-grade SDRAM components
- With 30u"gold plating PCB to improve anti-oxidation and ensure stability of signal transmission
- Applicable for industrial, defense, aeronautical and vehicular systems that face extreme environmental challenges

Wide Temp. UDIMM		
Model	**DDR4 Wide Temp. UDIMM**	**DDR3 Wide Temp. UDIMM**
Module Type	Wide Temperature UDIMM	Wide Temperature UDIMM
Memory Technology	DDR4	DDR3
Frequency	2133/2400	1066/1333/1600
Density	4GB/8GB/16GB	1G/2G/4G/8G
Voltage	1.2v	1.5v/1.35v
Pin Count	288-Pin	240-Pin
Width	64-Bit	64-Bit
PCB Height	1.23"	1.18"
Operation Temperature	TC=-40℃ to 85℃	TC=-40℃ to 85℃
Application	Transportation / Embedded & IPC / Defense	
Value-Added	Wide Temperature 30μ Gold Finger Underfill Conformal Coating	Wide Temperature 30μ Gold Finger Underfill Conformal Coating

Wide Temp SODIMM (Wide Temperature SODIMM)

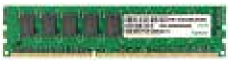
- Able to operate in temperatures ranging from -40℃ to 85℃
- Uses industrial-grade SDRAM components
- With 30u" gold plating PCB to improve anti-oxidation and ensure stability of signal transmission
- Applicable for industrial, defense, aeronautical and vehicular systems that face extreme environmental challenges

Wide Temp. SODIMM				
Model	**DDR4 Wide Temp. SODIMM**	**DDR3 Wide Temp. SODIMM**	**DDR2 Wide Temp. SODIMM**	**DDR Wide Temp. SODIMM**
Module Type	Wide Temperature SODIMM	Wide Temperature SODIMM	Wide Temperature SODIMM	Wide Temperature SODIMM
Memory Technology	DDR4	DDR3	DDR2	DDR
Frequency	2133/2400	1066/1333/1600	533/667/800	266/333/400
Density	4G/8G/16G	1G/2G/4G/8G	1G/2G	512M/1G
Voltage	1.2v	1.5v/1.35v	1.8v	2.5v/2.6v
Pin Count	260-Pin	204-Pin	200-Pin	200-Pin
Width	64-Bit	64-Bit	64-Bit	64-Bit
PCB Height	1.18"	1.18"	1.18"	1.25"
Operation Temperature	TC=-40℃ to 85℃	TC=-40℃ to 85℃	TC=-40℃ to 85℃	TA=-40℃ to 85℃
Application	Transportation / Embedded & IPC / Defense			
Value-Added	Wide Temperature 30μ Gold Finger Underfill Conformal Coating	Wide Temperature 30μ Gold Finger Underfill Conformal Coating	Wide Temperature 30μ Gold Finger Underfill Conformal Coating	Wide Temperature 30μ Gold Finger Underfill Conformal Coating

Wide Temperature

Wide Temp ECC UDIMM (Wide Temperature ECC UDIMM)

- Able to operate in temperatures ranging from -40℃ to 85℃
- Uses industrial-grade SDRAM components
- With 30u" gold plating PCB to improve anti-oxidation and ensure stability of signal transmission
- Applicable for industrial, defense, aeronautical and vehicular systems that face extreme environmental challenges

Wide Tempe. ECC SODIMM		
Model	**DDR4 Wide Temperature ECC UDIMM**	**DDR3 Wide Temperature ECC UDIMM**
Module Type	Wide Temperature ECC UDIMM	Wide Temperature ECC UDIMM
Memory Technology	DDR4	DDR3
Frequency	2133/2400	1066/1333/1600
Density	4G/8G/16G	1G/2G/4G/8G
Voltage	1.2v	1.5v/1.35v
Pin Count	288-Pin	240-Pin
Width	72-Bit	72-Bit
PCB Height	1.23"	1.18"
Operation Temperature	TC=-40℃ to 85℃	TC=-40℃ to 85℃
Application	Transportation / Embedded & IPC / Defense	
Value-Added	Wide Temperature 30μ Gold Finger Thermal Sensor Underfill Conformal Coating	Wide Temperature 30μ Gold Finger Thermal Sensor Underfill Conformal Coating

Wide Temp ECC SODIMM (Wide Temperature ECC SODIMM)

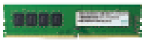
- Able to operate in temperatures ranging from -40℃ to 85℃
- Uses industrial-grade SDRAM components
- With 30u" gold plating PCB to improve anti-oxidation and ensure stability of signal transmission
- Applicable for industrial, defense, aeronautical and vehicular systems that face extreme environmental challenges

Wide Tempe. ECC SODIMM		
Model	**DDR4 Wide Tempe. ECC SODIMM**	**DDR3 Wide Tempe. ECC SODIMM**
Module Type	Wide Temperature ECC SODIMM	Wide Temperature ECC SODIMM
Memory Technology	DDR4	DDR3
Frequency	2133/2400	1066/1333/1600
Density	4GB/8GB/16GB	2G/4G/8G
Voltage	1.2v	1.5v/1.35v
Pin Count	260-Pin	204-Pin
Width	72-Bit	72-Bit
PCB Height	1.18"	1.18"
Operation Temperature	TC=-40℃ to 85℃	TC=-40℃ to 85℃
Application	Transportation / Embedded & IPC / Defense	
Value-Added	Wide Temperature 30μ Gold Finger Thermal Sensor Underfill Conformal Coating	Wide Temperature 30μ Gold Finger Thermal Sensor Underfill Conformal Coating

Specialty

Anti-Sulfuration Memory Modules

- World's first anti-sulfuration memory modules for the sulfur-containing environment
- The innovative design is now patented (USA/China/Taiwan)
- Applicable for equipment exposed in highly contaminated environment and electronic equipment used in areas of high-concentration sulfur gas

Anti-Sulfuration				
Model	**DDR4 Anti-Sulfuration UDIMM**	**DDR3 Anti-Sulfuration UDIMM**	**DDR4 Anti-Sulfuration SODIMM**	**DDR3 Anti-Sulfuration SODIMM**
Module Type	Anti-Sulfuration UDIMM	Anti-Sulfuration UDIMM	Anti-Sulfuration SODIMM	Anti-Sulfuration SODIMM
Memory Technology	DDR4	DDR3	DDR4	DDR3
Frequency	2133/2400	1066/1333/1600	2133/2400	1066/1333/1600
Density	4G/8G/16G	1G/2G/4G/8G	4G/8G/16G	1G/2G/4G/8G
Voltage	1.2v	1.35v/1.5v	1.2v	1.35v/1.5v
Pin Count	288-Pin	240-Pin	260-Pin	204-Pin
Width	64-Bit	64-Bit	64-Bit	64-Bit
PCB Height	1.23"	1.18"	1.18"	1.18"
Operation Temperature	TC=0℃ to 85℃	TC=0℃ to 85℃	TC=0℃ to 85℃ / -40℃ to 85℃	TC=0℃ to 85℃ / -40℃ to 85℃
Application	Cloud Computing / IoT / Transportation / Embedded & IPC / Defense / Healthcare			
Value-Added	30μ Gold Finger Underfill Conformal Coating	30μ Gold Finger Underfill Conformal Coating	30μ Gold Finger Underfill Conformal Coating	30μ Gold Finger Underfill Conformal Coating

Anti-Sulfuration						
Model	**DDR4 Anti-Sulfuration RDIMM**	**DDR3 Anti-Sulfuration RDIMM**	**DDR4 Anti-Sulfuration ECC UDIMM**	**DDR3 Anti-Sulfuration ECC UDIMM**	**DDR4 Anti-Sulfuration ECC SODIMM**	**DDR3 Anti-Sulfuration ECC SODIMM**
Module Type	Anti-Sulfuration RDIMM	Anti-Sulfuration RDIMM	Anti-Sulfuration ECC UDIMM	Anti-Sulfuration ECC UDIMM	Anti-Sulfuration ECC SODIMM	Anti-Sulfuration ECC SODIMM
Memory Technology	DDR4	DDR3	DDR4	DDR3	DDR4	DDR3
Frequency	2133/2400	1066/1333/1600	2133/2400	1066/1333/1600	2133/2400	1066/1333/1600
Density	4G/8G/16G/	1G/2G/4G/8G	4G/8G/16G	1G/2G/4G/8G	4G/8G/16G	1G/2G/4G/8G
Voltage	1.2v	1.5v/1.35v	1.2v	1.35v/1.5v	1.2v	1.35v/1.5v
Pin Count	288-Pin	240-Pin	288-Pin	240-Pin	260-Pin	204-Pin
Width	72-Bit	72-Bit	72-Bit	72-Bit	72-Bit	72-Bit
PCB Height	1.23"	1.18"	1.23"	1.18"	1.18"	1.18"
Operation Temperature	TC=0℃ to 85℃	TC=0℃ to 85℃	TC=0℃ to 85℃	TC=0℃ to 85℃	TC=0℃ to 85℃	TC=0℃ to 85℃
Application	Cloud Computing / IoT / Transportation / Embedded & IPC / Defense / Healthcare					
Value-Added	Thermal Sensor 30μ Gold Finger	Thermal Sensor 30μ Gold Finger	Thermal Sensor 30μ Gold Finger	Thermal Sensor 30μ Gold Finger	Thermal Sensor 30μ Gold Finger	Thermal Sensor 30μ Gold Finger

Specialty

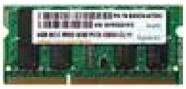
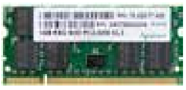
32-Bits SODIMM

- Supports the ARM architecture
- Provides the 32-bit ARM architecture with another design option besides on-board memory
- Applicable for networking, vehicular, mobile communication and embedded device markets

32-Bit			
Model	**DDR4 32-Bits SODIMM**	**DDR3 32-Bits SODIMM**	**DDR2 32-Bits SODIMM**
Module Type	32-Bits SODIMM	32-Bits SODIMM	32-Bits SODIMM
Memory Technology	DDR4	DDR3	DDR2
Frequency	2133/2400/2666	800/1066/1333	533/667
Density	2G/4G/8G	1G/2G/4G	512M/1G
Voltage	1.2v	1.5v	1.8v
Pin Count	260-Pin	204-Pin	200-Pin
Width	32-Bit	32-Bit	32-Bit
PCB Height	1.18"	1.18"	1.18"
Operation Temperature	TC=0℃ to 85℃	TC=0℃ to 85℃	TC=0℃ to 85℃
Application	Transportation / Embedded & IPC		
Value-Added	Underfill Conformal Coating	Underfill Conformal Coating	Underfill Conformal Coating

SORDIMM (Small Outline ECC Registered DIMM)

- Achieves signal synchronization and stability with the use of a register
- Supports ECC error detection and correction
- Supports a built-in temperature-monitoring thermal sensor
- Applicable for small-sized microserver and networking equipment, such as switch and router

SORDIMM			
Model	**DDR4 SORDIMM**	**DDR3 SORDIMM**	**DDR2 SORDIMM**
Module Type	(VLP) SORDIMM	SORDIMM	SORDIMM
Memory Technology	DDR4	DDR3	DDR2
Frequency	2133/2400/2666	1066/1333/1600	533/667
Density	4G/8G/16G	1G/2G/4G	512M/1G
Voltage	1.2v	1.35v/1.5v	1.8v
Pin Count	260-Pin	204-Pin	200-Pin
Width	72-Bit	72-Bit	72-Bit
PCB Height	0.738"/1.18"	1.18"	1.18"
Operation Temperature	TC=0℃ to 85℃	TC=0℃ to 85℃	TC=0℃ to 85℃
Application	Cloud Computing / IoT / Embedded & IPC		
Value-Added	Thermal Sensor 30μ Gold Finger Underfill Conformal Coating	Thermal Sensor 30μ Gold Finger Underfill Conformal Coating	30μ Gold Finger Underfill Conformal Coating

Specialty

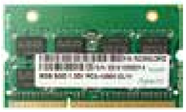
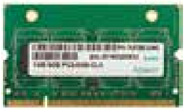
XR-DIMM

- Designed for shock and vibration environments
- Innovative design with highly rugged 300-pin connector and mounting holes
- Improves the stability of signal transmission
- Applicable for transportation, defense and aeronautical equipment that's requires shock and vibration resistance

XR-DIMM	
Model	**DDR4 XR-DIMM**
Module Type	XR-DIMM
Memory Technology	DDR4
Frequency	2133/2400
Density	8G/16G
Voltage	1.2v
Pin Count	300-Pin
Width	72-Bit
PCB Height	1.466"
Operation Temperature	TC=-40℃ to 85℃
Application	Transportation / Embedded & IPC / Defense
Value-Added	Wide Temperature Thermal Sensor Anti-Sulfuration Underfill Conformal Coating

Rugged SODIMM

- Designed with two mounting holes to secure the memory module to the board to achieve shock and vibration resistance
- Passed the US Department of Defense's MIL-STD-202G 12G shock and vibration testing standards
- Applicable for transportation, automation, medical, energy, defense and aeronautical equipment that requires shock and vibration resistance

Rugged SODIMM		
Model	**DDR3 Rugged SODIMM**	**DDR2 Rugged SODIMM**
Module Type	Rugged SODIMM	Rugged SODIMM
Memory Technology	DDR3	DDR2
Frequency	1066/1333/1600	533/667
Density	2G/4G/8G	512M/1G/2G
Voltage	1.35v/1.5v	1.8v
Pin Count	204-Pin	200-Pin
Width	64-Bit	64-Bit
PCB Height	1.55"	1.55"
Operation Temperature	TC=0℃ to 85℃	TC=0℃ to 85℃
Application	Transportation / Embedded & IPC / Defense	
Value-Added	30μ Gold Finger Underfill Conformal Coating	Underfill Conformal Coating

About Apacer

Founded in 1997, Apacer is a global leader in digital storage solutions and is devoted to innovation in storage technology and services.

The company concentrates on embedded applications for a variety of vertical markets, including military, medical, gaming, and industrial, and has become an integration expert for digital storage, innovative applications, and value added services. Apacer is known for its advanced technologies and product quality and was ranked by Gartner as the top industrial SSD supplier for five consecutive years (2012–2016).

As a leading memory and storage solution provider, Apacer has years of experience in embedded memory and storage solutions and has long-standing relationships with many embedded manufacturers. The company offers the most comprehensive, advanced, and market-fitted memory and storage solutions, all of which feature excellent operating performance, reliable durability, and comprehensive security.

Apacer continually creates unique storage products that have won multiple design awards both in Taiwan and internationally, including the Taiwan Excellence Award, the COMPUTEX d&i design award, the Good Design Award, and the iF Design Award.

The Most Reliable Memory For Industries

Global Presence

Taiwan (Headquarters)
Apacer Technology Inc.
Tel: +886-2-2267-8000
Fax: +886-2-2267-2261

Japan
Apacer Technology Corp.
Tel: +81-3-5419-2668
Fax: +81-3-5419-0018

U.S.A.
Apacer Memory America, Inc.
Tel: +1-408-518-8699
Fax: 1-510-249-9551

Europe
Apacer Technology B.V.
Tel: +31-40-267-0000
Fax: +31-40-290-0686

India
Apacer Technologies Pvt. Ltd.
Tel: +91-80-41529061~3
Fax: +91-80-41700215

China
Apacer Electronic(Shanghai) Co., Ltd.
Tel: +86-21-6228-9939

Apacer for Industrial
industrial.apacer.com