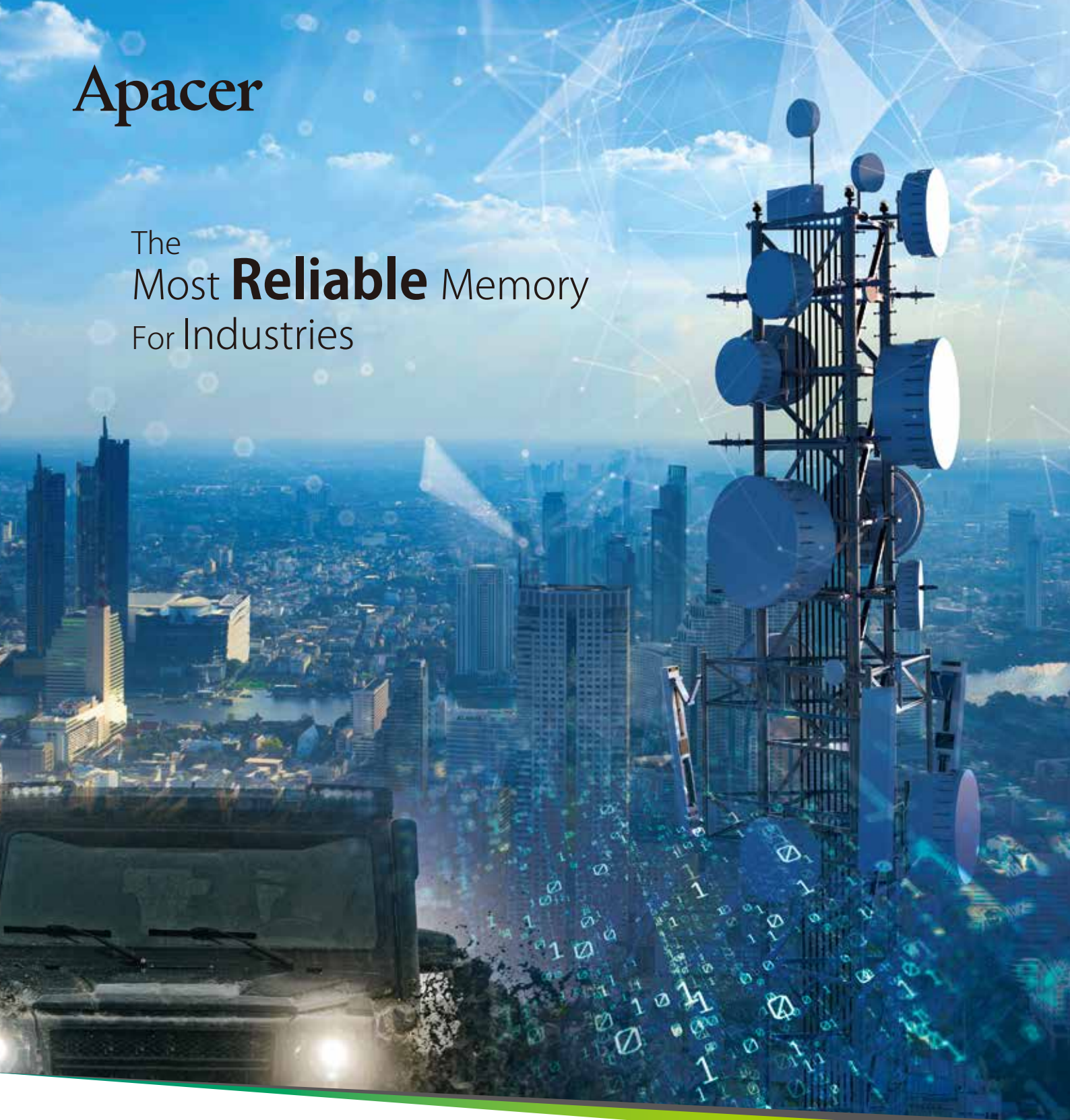


Apacer

The
Most **Reliable** Memory
For Industries



Industrial DRAM Solutions

industrial.apacer.com

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What Sets Apacer Apart?

Quality Assurance

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

Extensive Experience

- Tier 1 industrial SSD & memory supplier; delivered over 340 million units
- Comprehensive experience in product customization (across industries)

Reliable Service

- Fixed BOM solution
- Longevity of supply, EOL & LTB notice
- Manufacturing in Taiwan protects IP

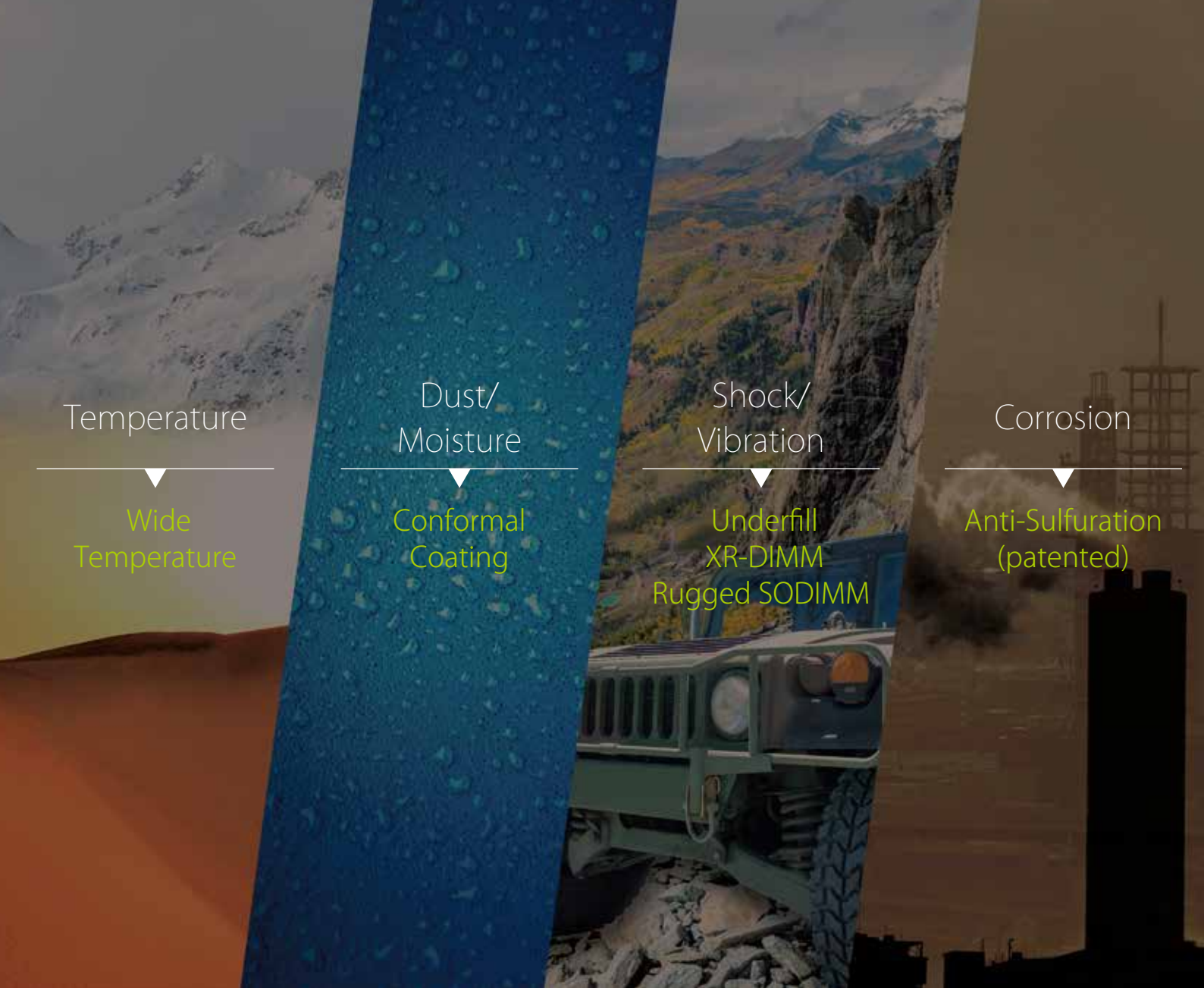
Professional Technique

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



Trustworthy Supplier

- 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



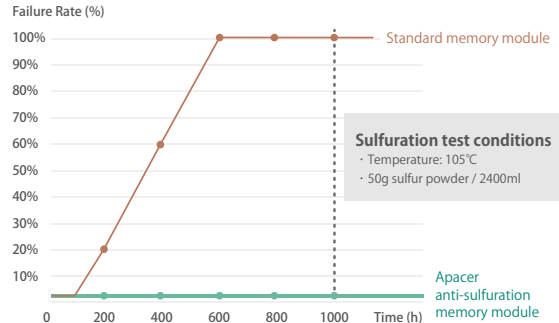
Anti-Sulfuration



Apacer's patented anti-sulfuration memory modules replace standard silver electrodes with an exclusive alloy which has passed the ASTM B809-95 anti-sulfuration test.

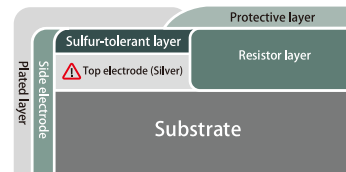
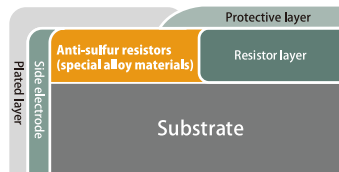
- World's first anti-sulfuration memory modules
- Solve corrosion problems effectively and increase overall system lifespan

Anti-sulfuration test



Anti-sulfuration technology comparison

| | Apacer's advanced anti-sulfuration technology | Traditional anti-sulfuration technology |
|-----------------------------------|--|--|
| Method | Adopts exclusive and improved alloy materials replace normal electrode | Covers an sulfur-tolerant layer to protect the electrode |
| Advantages / Disadvantages | Reliable anti-sulfuration performance, improved product reliability and durability | Unstable anti-sulfuration performance due to process failure |

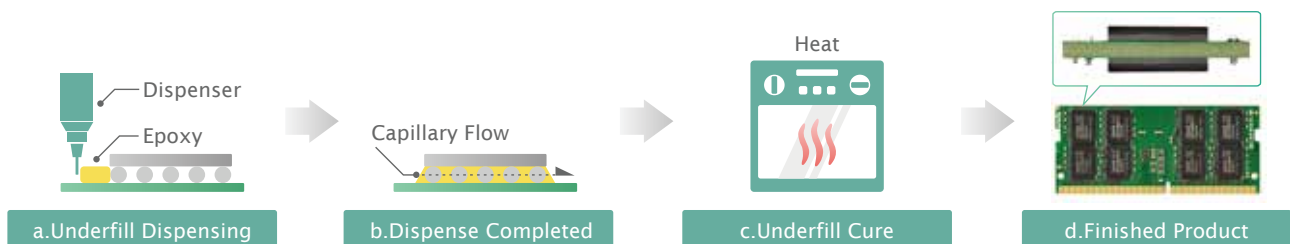


Underfill

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



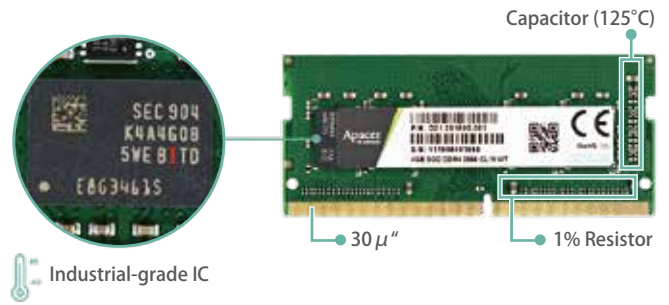


Wide Temperature

Especially designed for harsh climates and special environmental conditions.

- **Operating temperature range: $-40^{\circ}\text{C} \leq \text{TC} \leq 85^{\circ}\text{C}$**
- **All industrial-grade components (DRAM, PCB, resistors and capacitors) ensure stability and reliability**
- **High/Low temp. test / Temp. cycling test**
- **Power cycling test**

Insists on using industrial-grade DRAM ICs



Apacer's strengths of wide temperature memory

| Apacer industrial-grade wide temp. memory | | Standard memory (Commercial) |
|--|--|---|
| Industrial-grade ($-40 \sim +85^{\circ}\text{C}$) Suitable for extreme high and low temperature environment | ◀ DRAM ▶ | Commercial-grade ($0 \sim +85^{\circ}\text{C}$) |
| 30 μm Avoids gold finger oxidation and ensures the stability of signal transmission | ◀ PCB plating thickness ▶ | 3 μm |
| Up to +125$^{\circ}\text{C}$ Ensures more stable voltage supply in high-temperature environment | ◀ Capacitor temp. specification ▶ | +85 $^{\circ}\text{C}$ |
| $\pm 1\%$ tolerance Increases circuit stability and durability | ◀ Resistor specification ▶ | $\pm 5\%$ tolerance |



30 μm
Gold Finger

30 μm Gold Finger

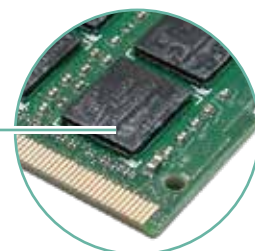
With the 30 μm gold plating, the connector interface is more reliable and can withstand the potential damages in industrial applications.



Conformal Coating

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

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

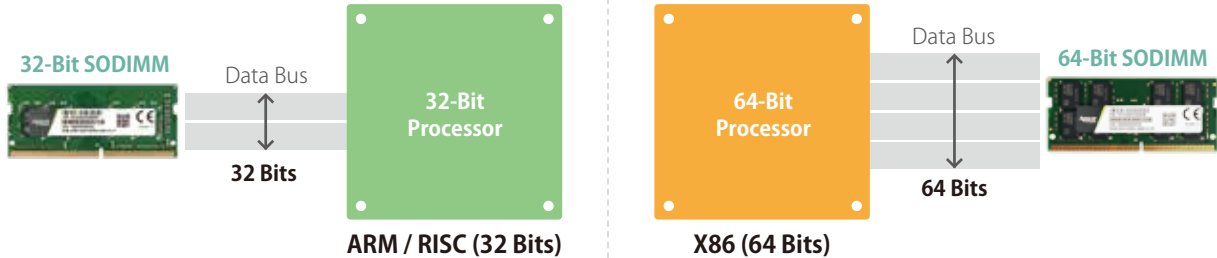


● Apacer DRAM module with conformal coating

32
Bit

32-Bit SODIMM

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 onboard memory.



Rugged

Extremely Rugged XR-DIMM

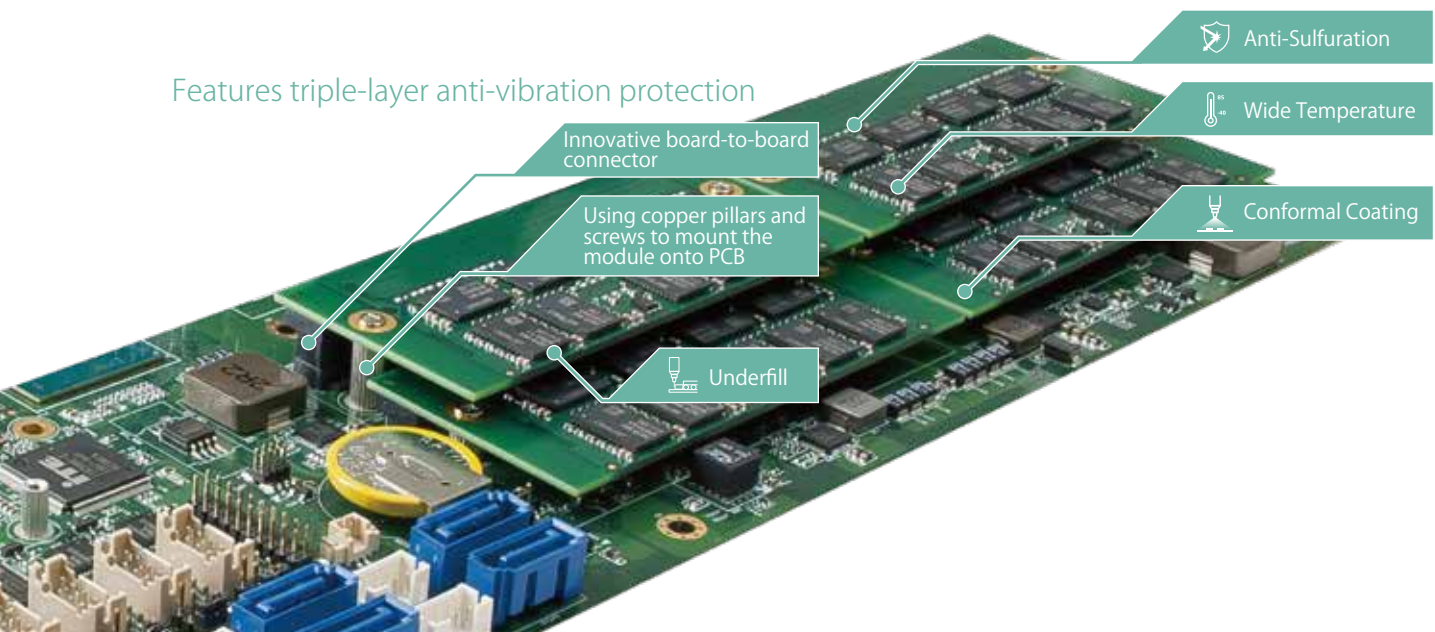
- Innovative board-to-board connector design
- Adopts highly durable 300-pin connector and mounting holes to improve the anti-vibration and anti-shock reliability
- Dual anti-shock and vibration certification: RTCA DO-160G / MIL-STD-810G
- Supports multiple protection technologies and value-added applications

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 | Uniform 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











| Model | DDR4 UDIMM | DDR3 UDIMM | DDR2 UDIMM | DDR UDIMM |
|------------------------------|---|---|--|---|
| Module Type | UDIMM | UDIMM | UDIMM | UDIMM |
| Memory Technology | DDR4 | DDR3 | DDR2 | DDR |
| Frequency | 2133/2400/2666/2933/3200 | 1066/1333/1600/1866 | 533/667/800 | 266/333/400 |
| Density | 2G/4G/8G/16G/32G | 1G/2G/4G/8G/16G | 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°C to 85°C | TC=0°C to 85°C | TC=0°C to 85°C | TA=0°C to 70°C |
| Application | Gaming / Healthcare / IoT / Factory Automation | | | |
| Value-Added |   |   |   |  |

SODIMM (Small Outline DIMM)

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



| Model | DDR4 SODIMM | DDR3 SODIMM | DDR2 SODIMM | DDR SODIMM |
|------------------------------|---|---|--|---|
| Module Type | SODIMM | SODIMM | SODIMM | SODIMM |
| Memory Technology | DDR4 | DDR3 | DDR2 | DDR |
| Frequency | 2133/2400/2666/2933/3200 | 1066/1333/1600/1866 | 533/667/800 | 266/333/400 |
| Density | 2G/4G/8G/16G/32G | 1G/2G/4G/8G/16G | 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°C to 85°C | TC=0°C to 85°C | TC=0°C to 85°C | TA=0°C to 70°C |
| Application | Gaming / IoT / Transportation / Factory Automation | | | |
| Value-Added |   |   |   |   |

Server/Workstation

RDIMM (ECC Registered DIMM)

- Includes a register to enhance clock, command and control signals
- Supports ECC error detection and correction
- Supports a built-in temperature-monitoring thermal sensor
- Applicable for enterprise servers and cloud data centers



| Model | DDR4 RDIMM | DDR3 RDIMM |
|------------------------------|----------------------------------|---------------------|
| Module Type | RDIMM | RDIMM |
| Memory Technology | DDR4 | DDR3 |
| Frequency | 2133/2400/2666/2933/3200 | 1066/1333/1600/1866 |
| Density | 4G/8G/16G/32G/64G | 1G/2G/4G/8G/16G |
| 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=0°C to 85°C | TC=0°C to 85°C |
| Application | Healthcare / Server & Networking | |

Value-Added



LRDIMM (Load Reduced DIMM)

- Includes a register to enhance clock, command and control signals
- Enhanced data signal with placing data buffer
- Supports ECC error detection and correction
- Supports a built-in temperature-monitoring thermal sensor
- Applicable for enterprise servers and cloud data centers



| Model | DDR4 LRDIMM |
|------------------------------|----------------------------------|
| Module Type | LRDIMM |
| Memory Technology | DDR4 |
| Frequency | 2666/2933/3200 |
| Density | 64G/128G |
| Voltage | 1.2v |
| Pin Count | 288-Pin |
| Width | 72-Bit |
| PCB Height | 1.23" |
| Operation Temperature | TC=0°C to 85°C |
| Application | Healthcare / Server & Networking |

Value-Added



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



| Model | DDR4 ECC UDIMM | DDR3 ECC UDIMM | DDR2 ECC UDIMM |
|------------------------------|---|---------------------|----------------|
| Module Type | ECC UDIMM | ECC UDIMM | ECC UDIMM |
| Memory Technology | DDR4 | DDR3 | DDR2 |
| Frequency | 2133/2400/2666/2933/3200 | 1066/1333/1600/1866 | 533/667/800 |
| Density | 4G/8G/16G/32G | 1G/2G/4G/8G/16G | 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°C to 85°C | TC=0°C to 85°C | TC=0°C to 85°C |
| Application | Healthcare / IoT / Server & Networking / Factory Automation | | |

Value-Added



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



| Model | DDR4 ECC SODIMM | DDR3 ECC SODIMM |
|------------------------------|---|---------------------|
| Module Type | ECC SODIMM | ECC SODIMM |
| Memory Technology | DDR4 | DDR3 |
| Frequency | 2133/2400/2666/2933/3200 | 1066/1333/1600/1866 |
| Density | 4G/8G/16G/32G | 1G/2G/4G/8G/16G |
| 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=0°C to 85°C | TC=0°C to 85°C |
| Application | IoT / Server & Networking / Transportation / Factory Automation | |

Value-Added



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-constrained systems, such as small-size industrial computers and embedded systems



| Model | DDR4 VLP UDIMM | DDR3 VLP UDIMM | DDR2 VLP UDIMM |
|------------------------------|---------------------------|----------------|----------------|
| Module Type | VLP UDIMM | VLP UDIMM | VLP UDIMM |
| Memory Technology | DDR4 | DDR3 | DDR2 |
| Frequency | 2133/2400/2666/2933/3200 | 1066/1333/1600 | 533/667/800 |
| Density | 4G/8G/16G/32G | 1G/2G/4G/8G | 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°C to 85°C | TC=0°C to 85°C | TC=0°C to 85°C |
| Application | IoT / Server & Networking | | |

Value-Added



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-constrained systems, such as small form-factor industrial computers and embedded systems



| Model | DDR4 VLP SODIMM | DDR4 VLP ECC SODIMM |
|------------------------------|--------------------------|--------------------------|
| Module Type | VLP SODIMM | VLP ECC SODIMM |
| Memory Technology | DDR4 | DDR4 |
| Frequency | 2133/2400/2666/2933/3200 | 2133/2400/2666/2933/3200 |
| 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°C to 85°C | TC=0°C to 85°C |
| Application | IoT / Transportation | |

Value-Added



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-constrained systems and systems that require high stability, such as blade servers, 1U rack servers and various embedded systems.



| Model | DDR4 VLP RDIMM | DDR3 VLP RDIMM |
|------------------------------|----------------------------------|----------------|
| Module Type | VLP RDIMM | VLP RDIMM |
| Memory Technology | DDR4 | DDR3 |
| Frequency | 2133/2400/2666/2933/3200 | 1066/1333/1600 |
| Density | 4G/8G/16G/32G | 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°C to 85°C | TC=0°C to 85°C |
| Application | Healthcare / Server & Networking | |

Value-Added



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-constrained, servers and workstations that require high stability



| Model | DDR4 VLP ECC UDIMM | DDR3 VLP ECC UDIMM |
|------------------------------|----------------------------------|--------------------|
| Module Type | VLP ECC UDIMM | VLP ECC UDIMM |
| Memory Technology | DDR4 | DDR3 |
| Frequency | 2133/2400/2666/2933/3200 | 1066/1333/1600 |
| Density | 4G/8G/16G/32G | 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°C to 85°C | TC=0°C to 85°C |
| Application | Healthcare / Server & Networking | |

Value-Added



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-constrained networking, communication, server and embedded system



| | |
|------------------------------|---------------------|
| Model | DDR4 Mini RDIMM |
| Module Type | (VLP) Mini RDIMM |
| Memory Technology | DDR4 |
| Frequency | 2133/2400/2666 |
| Density | 4GB/8GB/16GB |
| Voltage | 1.2v |
| Pin Count | 288-Pin |
| Width | 72-Bit |
| PCB Height | 0.738"/1.23" |
| Operation Temperature | TC=0°C to 85°C |
| Application | Server & Networking |

Value-Added



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-constrained networking, communication, server and embedded systems



| | |
|------------------------------|-------------------------|
| Model | DDR4 VLP Mini ECC UDIMM |
| Module Type | VLP Mini ECC UDIMM |
| Memory Technology | DDR4 |
| Frequency | 2133/2400/2666 |
| Density | 4G/8G/16G |
| Voltage | 1.2v |
| Pin Count | 288-Pin |
| Width | 72-Bit |
| PCB Height | 0.738" |
| Operation Temperature | TC=0°C to 85°C |
| Application | Server & Networking |

Value-Added



Wide Temperature

Wide Temp UDIMM (Wide Temperature UDIMM)

- Able to operate in temperatures ranging from -40°C to 85°C
- 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



| Model | DDR4 Wide Temp. UDIMM | DDR3 Wide Temp. UDIMM |
|------------------------------|---|------------------------|
| Module Type | Wide Temperature UDIMM | Wide Temperature UDIMM |
| Memory Technology | DDR4 | DDR3 |
| Frequency | 2133/2400/2666/2933/3200 | 1066/1333/1600 |
| Density | 4G/8G/16G/32G | 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°C to 85°C | TC=-40°C to 85°C |
| Application | Defense / IoT / Transportation / Factory Automation | |

Value-Added



Wide Temp SODIMM (Wide Temperature SODIMM)

- Able to operate in temperatures ranging from -40°C to 85°C
- 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



| 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 | 2133/2400/2666/2933/3200 | 1066/1333/1600 | 533/667/800 | 266/333/400 |
| Density | 4G/8G/16G/32G | 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°C to 85°C | TC=-40°C to 85°C | TC=-40°C to 85°C | TA=-40°C to 85°C |
| Application | Defense / IoT / Transportation / Factory Automation | | | |

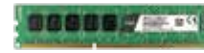
Value-Added



Wide Temperature

Wide Temp ECC UDIMM (Wide Temperature ECC UDIMM)

- Able to operate in temperatures ranging from -40°C to 85°C
- 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



| 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 | 2133/2400/2666/2933/3200 | 1066/1333/1600 |
| Density | 4G/8G/16G/32G | 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°C to 85°C | TC=-40°C to 85°C |
| Application | Defense / IoT / Transportation / Factory Automation | |

Value-Added



Wide Temp ECC SODIMM (Wide Temperature ECC SODIMM)

- Able to operate in temperatures ranging from -40°C to 85°C
- 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



| 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 | 2133/2400/2666/2933/3200 | 1066/1333/1600 |
| Density | 4G/8G/16G/32G | 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°C to 85°C | TC=-40°C to 85°C |
| Application | Defense / IoT / Transportation / Factory Automation | |

Value-Added



Specialty

Anti-Sulfuration Memory Modules

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



| 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 | 2133/2400/2666/2933/3200 | 1066/1333/1600 | 2133/2400/2666/2933/3200 | 1066/1333/1600 |
| Density | 4G/8G/16G/32G | 1G/2G/4G/8G | 4G/8G/16G/32G | 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°C to 85°C | TC=0°C to 85°C | TC=0°C to 85°C / -40°C to 85°C | TC=0°C to 85°C / -40°C to 85°C |
| Application | Defense / Healthcare / IoT / Transportation / Factory Automation | | | |
| Value-Added | | | | |







| 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 | 2133/2400/2666/2933/3200 | 1066/1333/1600 | 2133/2400/2666/2933/3200 | 1066/1333/1600 | 2133/2400/2666/2933/3200 | 1066/1333/1600 |
| Density | 4G/8G/16G/32G | 1G/2G/4G/8G | 4G/8G/16G/32G | 1G/2G/4G/8G | 4G/8G/16G/32G | 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°C to 85°C | TC=0°C to 85°C | TC=0°C to 85°C | TC=0°C to 85°C | TC=0°C to 85°C | TC=0°C to 85°C |
| Application | Defense / Healthcare / IoT / Transportation / Factory Automation | | | | | |
| Value-Added | | | | | | |

Specialty

32-Bit SODIMM

- Supports the ARM architecture
- Provides the 32-bit ARM architecture with another design option besides on-board memory
- Double seismic certification: RTCA DO-160G / MIL-STD-810G
- Applicable for networking, vehicular, mobile communication and embedded device markets







| Model | DDR4 32-Bit SODIMM | DDR3 32-Bit SODIMM |
|------------------------------|---|---|
| Module Type | 32-Bit SODIMM | 32-Bit SODIMM |
| Memory Technology | DDR4 | DDR3 |
| Frequency | 2133/2400/2666 | 800/1066/1333 |
| Density | 2G/4G/8G | 1G/2G/4G |
| Voltage | 1.2v | 1.5v |
| Pin Count | 260-Pin | 204-Pin |
| Width | 32-Bit | 32-Bit |
| PCB Height | 1.18" | 1.18" |
| Operation Temperature | TC=0°C to 85°C | TC=0°C to 85°C |
| Application | IoT / Transportation | |
| Value-Added |   |   |

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 switches and routers



| Model | DDR4 SORDIMM |
|------------------------------|--|
| Module Type | (VLP) SORDIMM |
| Memory Technology | DDR4 |
| Frequency | 2133/2400/2666 |
| Density | 4G/8G/16G |
| Voltage | 1.2v |
| Pin Count | 260-Pin |
| Width | 72-Bit |
| PCB Height | 0.738"/1.18" |
| Operation Temperature | TC=0°C to 85°C |
| Application | Server & Networking |
| Value-Added |     |

Specialty

XR-DIMM

- Designed for shock and vibration environments
- Innovative design with highly rugged 300-pin connector and mounting holes
- Dual anti-shock and vibration certification: RTCA DO-160G / MIL-STD-810G
- Improves the stability of signal transmission
- Applicable for transportation, defense and aeronautical equipment that requires shock and vibration resistance



| 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°C to 85°C |
| Application | Defense / Transportation |

Value-Added



Rugged SODIMM

- Designed with two mounting holes to secure the memory module to the board to achieve shock and vibration resistance
- Dual anti-shock and vibration certification: RTCA DO-160G / MIL-STD-883K
- Applicable for transportation, automation, wind power generation, energy, defense and aeronautical equipment that requires shock and vibration resistance



| Model | DDR4 Rugged SODIMM |
|-----------------------|--------------------------------|
| Module Type | Rugged SODIMM |
| Memory Technology | DDR4 |
| Frequency | 2133/2400/2666/2933/3200 |
| Density | 8G/16G/32G |
| Voltage | 1.2v |
| Pin Count | 260-Pin |
| Width | 64-Bit/72-Bit |
| PCB Height | 1.377" |
| Operation Temperature | TC=0°C to 85°C / -40°C to 85°C |
| Application | Defense / Transportation |

Value-Added





About Apacer

Apacer is a global leader in digital storage solutions devoted to innovative storage technology and services. After 20 years in the industry, we remain dedicated to our belief in “persistence in doing the right things.” Our core values, as always, continue to revolve around reliability and innovation.

The company focuses on embedded applications for a variety of vertical markets, including military, medical, gaming, and industrial, and has become an integration expert in 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, from 2012 to 2016. In addition, Apacer is committed to making a positive impact on societal issues and has joined the **Responsible Business Alliance (RBA)**, which is formerly known as Electronic Industry Citizenship Coalition (EICC), a coalition promoting **corporate social responsibility (CSR)** within the global electronics supply chain. We believe that the success of a corporation is marked not by profit but by how we benefit others, whether by caring for the environment or making contributions to society.



Compliance and Associations





The Most Reliable Memory For Industries

Global Presence

Taiwan (Headquarters)

Apacer Technology Inc.
Tel: +886-2-2267-8000
Fax: +886-2-2267-2261
Industrial@apacer.com

Japan

Apacer Technology Corp.
Tel: +81-3-5419-2668
Fax: +81-3-5419-0018
jpservices@apacer.com

U.S.A.

Apacer Memory America, Inc.
Tel: +1-408-518-8699
Fax: 1-510-249-9551
ssdsales@apacerus.com

Europe

Apacer Technology B.V.
Tel: +31-40-267-0000
Fax: +31-40-290-0686
sales@apacer.nl

India

Apacer Technologies Pvt. Ltd.
Tel: +91-80-41529061~3
Fax: +91-80-41700215
sales_India@apacer.com

China

Apacer Electronic(Shanghai) Co., Ltd.
Tel: +86-21-6228-9939
Industrial@apacer.com

