

## DRAM Modules

Innodisk's industrial-grade DRAM series features high-quality memory modules that have been specifically designed and developed for industrial computers and similar applications. Our specialized SPD team is ready to provide system designers with a complete turn-key solution for any engineering requirements.

Innodisk's DRAM modules are categorized to meet different systems' needs, and supports DDR4, DDR3, DDR2, DDR, and SDRAM. Our DRAM modules are available in 4 product lines: Embedded, Server, Wide Temperature, and Special Customized.

Innodisk's comprehensive range of DRAM modules includes: Unbuffered DIMM, Unbuffered SO-DIMM, Unbuffered ECC DIMM, Unbuffered ECC SO-DIMM, MINI DIMM and LR-DIMM, registered DIMM, conformal coated DRAM, and side filled DRAM.

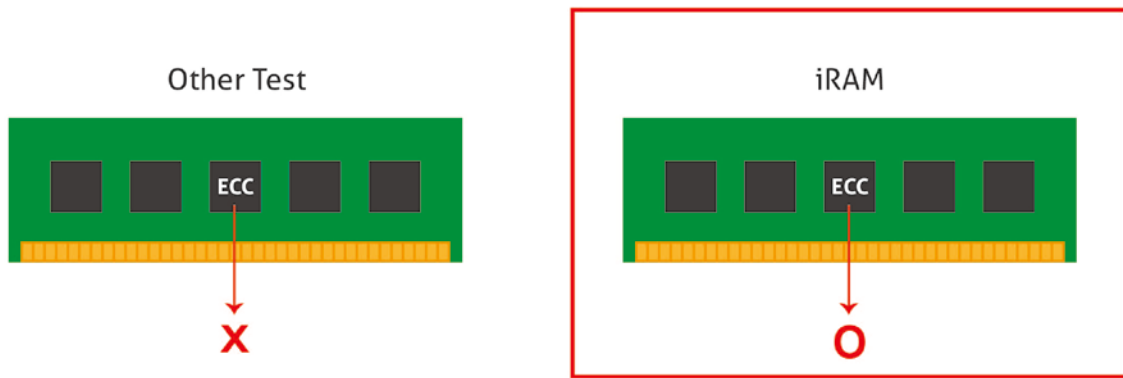
## Innodisk's Exclusive Testing Software

iRAM is Innodisk's latest testing software. Compared with existing testing software in the market, it is able to cut testing time in half while doubling the test's stringency.

### iRAM Advantages

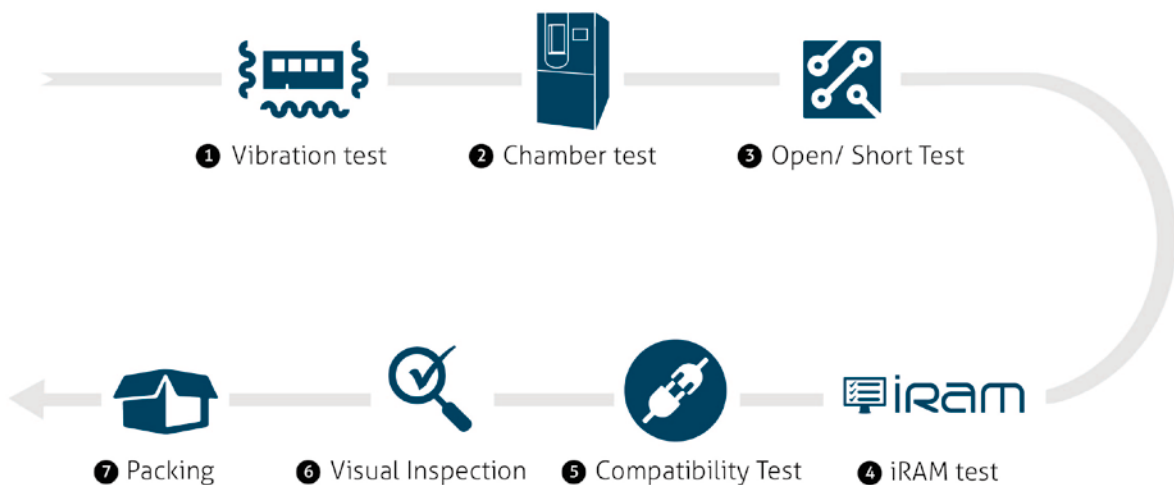
- Increased test stringency: ensures DRAM module quality
- Able to pinpoint individual defective IC : the only module house that can monitor ECC IC status
- Web-based diagnostic tool: high precision testing through simulating the customer's user-environment
- Multi-core 64bit test mode: increased efficiency

### Comparison of iRAM & other testing software



The most powerful iRAM function is the detection of IC failure within every piece of IC on the DIMM under ECC operation. iRAM is the only software in the industry that can diagnose ECC DRAM IC.

### Innodisk ECC & RDIMM module testing process



After rigorous testing, we can ensure delivery of the finest quality products while simultaneously minimizing maintenance cost.

# Embedded

## Embedded LONG DIMM

LONG DIMM modules are DRAM modules meant to be used as standard products for general embedded applications. These modules are compliant with JEDEC standards and available in DDR1, DDR2, DDR3, and DDR4.



Series	Standard Solution	
Module Type	DDR4 LONG DIMM	DDR3 LONG DIMM
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s	1066 MT/s, 1333 MT/s, 1600 MT/s, 1866 MT/s
Capacity	4GB/8GB/16GB	1GB/2GB/4GB/8GB/16GB
Function	Non-ECC Unbuffered Memory	
Pin Number	288pin	240pin
Width	64Bits	64Bits
Voltage	1.2V	1.5V/1.35V
PCB Height	1.23 Inches	1.18 Inches
Operating Temperature	0 ~ 85°C	0 ~ 85°C
Value-Added Service (Optional)	Conformal Coating / Side Fill	



Series	Standard Solution	
Module Type	DDR2 LONG DIMM	DDR LONG DIMM
Data Rate	533 MT/s, 667 MT/s, 800 MT/s	333 MT/s, 400 MT/s
Capacity	512MB/1GB/2GB/4GB	512MB/1GB
Function	Non-ECC Unbuffered Memory	
Pin Number	240pin	184pin
Width	64Bits	64Bits
Voltage	1.8V	2.6V
PCB Height	1.18 Inches	1.16 Inches
Operating Temperature	0 ~ 85°C	0 ~ 70°C
Value-Added Service (Optional)	Conformal Coating / Side Fill	

## Embedded SODIMM

Small-outline DIMMs (SODIMM) modules are general DRAM modules meant to be used as standard products for embedded applications with limited space. These modules are compliant with JEDEC standards and help in eliminating the need for changing designs due to limited space.



Series	Standard Solution		
Module Type	DDR4 SODIMM	DDR3 SODIMM	DDR2 SODIMM
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s	1066 MT/s, 1333 MT/s, 1600 MT/s, 1866 MT/s	533 MT/s, 667 MT/s, 800 MT/s
Capacity	2GB/4GB/8GB/16GB	1GB/2GB/4GB/8GB/16GB	512MB/1GB/2GB/4GB
Function	Non-ECC Unbuffered Memory		
Pin Number	260pin	204pin	200pin
Width	64Bits	64Bits	64Bits
Voltage	1.2V	1.5V/1.35V	1.8V
PCB Height	1.18 Inches	1.18 Inches	1.18 Inches
Operating Temperature	0 ~ 85°C	0 ~ 85°C	0 ~ 85°C
Value-Added Service (Optional)	Conformal Coating / Side Fill		



Series	Standard Solution	
Module Type	DDR SODIMM	SDRAM SODIMM
Data Rate	333 MT/s, 400 MT/s	100 MT/s, 133 MT/s
Capacity	256MB/512MB/1GB	128MB/256MB/512MB
Function	Non-ECC Unbuffered Memory	
Pin Number	200pin	144pin
Width	64Bits	64Bits
Voltage	2.6V	3.3V
PCB Height	1.25 Inches	1.1 Inches
Operating Temperature	0 ~ 70°C	0 ~ 70°C
Value-Added Service (Optional)	Conformal Coating / Side Fill	

# Server

## Server Registered DIMM

Registered DIMM modules are designed to ensure data integrity at both the device and system level of the server. In addition, all Innodisk Registered DIMM modules are tested by our exclusive iRAM testing software to ensure stable performance.



Series	Server Solution	
Module Type	DDR4 LONG DIMM	DDR3 LONG DIMM
Data Rate	2133MT/s, 2400 MT/s, 2666MT/s	1333 MT/s, 1600 MT/s
Capacity	4GB/8GB/16GB/32GB	1GB/2GB/4GB/8GB
Function	Registered Memory with ECC	
Pin Number	288pin	240pin
Width	72Bits	72Bits
Voltage	1.2V	1.5V/1.35V
PCB Height	1.23 Inches	1.18 Inches
Operating Temperature	0 ~ 85°C	0 ~ 85°C
Golden finger 30μ"	√	√

# Wide Temperature

## Wide Temperature Unbuffered DIMM

Designed for industrial systems, Innodisk's Wide Temperature DRAM modules are the best choice for applications operating in harsh conditions. Our wide temperature modules use industrial-grade SDRAM components with 30u" Gold fingers to ensure that the memory maintains its high-quality signal, even at temperatures as low as -40°C or as high as 85°C.



Series	Wide Temperature Solution	
Module Type	DDR4 LONG DIMM	DDR3 LONG DIMM
Data Rate	2133 MT/s, 2400 MT/s	1066 MT/s, 1333 MT/s, 1600 MT/s
Capacity	4GB/8GB/16GB	2GB/4GB/8GB
Function	Non-ECC Unbuffered Memory	
Pin Number	288pin	240pin
Width	64Bits	64Bits
Voltage	1.2V	1.5V/1.35V
PCB Height	1.23 Inches	1.18 Inches
Operating Temperature	-40 ~ 85°C	-40 ~ 85°C
Golden finger 30μ"	√	√
Value-Added Service (Optional)	Conformal Coating / Side Fill	



Series	Wide Temperature Solution			
Module Type	DDR4 SODIMM	DDR3 SODIMM	DDR2 SODIMM	DDR SODIMM
Data Rate	2133 MT/s, 2400 MT/s	1066 MT/s, 1333 MT/s, 1600 MT/s	533 MT/s, 667 MT/s, 800 MT/s	333 MT/s, 400 MT/s
Capacity	4GB/8GB/16GB	2GB/4GB/8GB	1GB/2GB	512MB/1GB
Function	Non-ECC Unbuffered Memory			
Pin Number	260pin	204pin	200pin	200pin
Width	64Bits	64Bits	64Bits	64Bits
Voltage	1.2V	1.5V/1.35V	1.8V	2.6V
PCB Height	1.18 Inches	1.18 Inches	1.18 Inches	1.25 Inches
Operating Temperature	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C
Golden finger 30μ"	✓	✓	✓	✓
Value-Added Service (Optional)	Conformal Coating / Side Fill			

## Wide Temperature Unbuffered DIMM with ECC

Wide Temperature ECC DIMMs are designed for both industrial systems and servers, Innodisk's Wide Temperature DRAM modules are best suited for applications that must work in extreme temperatures. With the ECC function, the Wide Temperature DIMMs also ensure that data is corrected when corrupted data bits are found during data retrieval.



Series	Wide Temperature Solution			
Module Type	DDR4 LONG DIMM	DDR4 SODIMM	DDR3 LONG DIMM	DDR3 SODIMM
Data Rate	2133 MT/s, 2400 MT/s, 2666MT/s	2133 MT/s, 2400 MT/s, 2666MT/s	1066 MT/s, 1333 MT/s, 1600 MT/s, 1866 MT/s	1066 MT/s, 1333 MT/s, 1600 MT/s, 1866 MT/s
Capacity	4GB/8GB/16GB	4GB/8GB/16GB	2GB/4GB/8GB	2GB/4GB/8GB
Function	Unbuffered Memory with ECC			
Pin Number	288pin	260pin	240pin	204pin
Width	72Bits	72Bits	72Bits	72Bits
Voltage	1.2V	1.2V	1.5V/1.35V	1.5V/1.35V
PCB Height	1.23 Inches	1.18 Inches	1.18 Inches	1.18 Inches
Operating Temperature	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C
Golden finger 30μ"	✓	✓	✓	✓
Value-Added Service (Optional)	Conformal Coating / Side Fill			

# ECC DIMM

ECC modules are designed to detect and correct single-bit errors that occur during data storage and transmission. ECC modules use Hamming Code or Triple Modular Redundancy for error detection and correction, and manage error corrections on their own, without requesting that the data source resend original data.



Series	Unbuffered DIMM with ECC Solution	
Module Type	DDR4 LONG DIMM	DDR4 SODIMM
Data Rate	2133 MT/s, 2400 MT/s, 2666MT/s	2133 MT/s, 2400 MT/s, 2666MT/s
Capacity	4GB/8GB/16GB	4GB/8GB/16GB
Function	Unbuffered Memory with ECC	
Pin Number	288pin	260pin
Width	72Bits	72Bits
Voltage	1.2V	1.2V
PCB Height	1.23 Inches	1.18 Inches
Operating Temperature	0 ~ 85°C	0 ~ 85°C
Golden finger 30μ"	✓	✓
Value-Added Service (Optional)	Conformal Coating / Side Fill	



Series	Unbuffered DIMM with ECC Solution	
Module Type	DDR3 LONG DIMM	DDR3 SODIMM
Data Rate	1066 MT/s, 1333 MT/s, 1600 MT/s, 1866 MT/s	1066 MT/s, 1333 MT/s, 1600 MT/s, 1866 MT/s
Capacity	1GB/2GB/4GB/8GB/16GB	1GB/2GB/4GB/8GB/16GB
Function	Unbuffered Memory with ECC	
Pin Number	240pin	204pin
Width	72Bits	72Bits
Voltage	1.5V/1.35V	1.5V/1.35V
PCB Height	1.18 Inches	1.18 Inches
Operating Temperature	0 ~ 85°C	0 ~ 85°C
Golden finger 30μ"	✓	✓
Value-Added Service (Optional)	Conformal Coating / Side Fill	



Series	Unbuffered DIMM with ECC Solution
Module Type	DDR2 LONG DIMM
Data Rate	667 MT/s, 800 MT/s
Capacity	512MB/1GB/2GB
Function	Unbuffered Memory with ECC
Pin Number	240pin
Width	72Bits
Voltage	1.8V
PCB Height	1.18 Inches
Operating Temperature	0 ~ 85°C
Golden finger 30μ"	✓
Value-Added Service (Optional)	Conformal Coating / Side Fill

# Very Low-Profile (VLP) DIMM

Low-Profile DIMM modules are designed for use in 1U systems, such as blade server data centers, where system height is lower than 1.18 inches. The design of these modules improves air flow inside the system and reduces thermal impact.



Series	Very Low-Profile (VLP) Solution			
Module Type	DDR4 LONG DIMM	DDR4 LONG DIMM	DDR4 LONG DIMM	DDR4 LONG DIMM
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s	2400 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s
Capacity	4GB/8GB/16GB	8GB/16GB	4GB/8GB/16GB	4GB/8GB/16GB
Function	Non-ECC Unbuffered Memory	Non-ECC Unbuffered Memory	Unbuffered Memory with ECC	Registered Memory with ECC
Pin Number	288pin	288pin	288pin	288pin
Width	64Bits	64Bits	72Bits	72Bits
Voltage	1.2V	1.2V	1.2V	1.2V
PCB Height	0.738 Inches	0.738 Inches	0.738 Inches	0.738 Inches
Operating Temperature	0 ~ 85°C	-40 ~ 85°C	0 ~ 85°C	0 ~ 85°C
Golden finger 30μ"	—	—	✓	✓
Value-Added Service (Optional)	Conformal Coating / Side Fill			



Series	Very Low-Profile (VLP) Solution	
Module Type	DDR4 SODIMM	DDR4 SODIMM
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s
Capacity	4GB/8GB	4GB/8GB
Function	Non-ECC Unbuffered Memory	Unbuffered Memory with ECC
Pin Number	260pin	260pin
Width	64Bits	72Bits
Voltage	1.2V	1.2V
PCB Height	0.7 Inches	0.7 Inches
Operating Temperature	0 ~ 85°C	0 ~ 85°C
Golden finger 30μ"	—	✓
Value-Added Service (Optional)	Conformal Coating / Side Fill	



Series	Very Low-Profile (VLP) Solution		
Module Type	DDR3 LONG DIMM	DDR3 ECC LONG DIMM	DDR3 LONG DIMM
Data Rate	1066 MT/s, 1333 MT/s, 1600 MT/s	1066 MT/s, 1333 MT/s, 1600 MT/s	1066 MT/s, 1333 MT/s, 1600 MT/s
Capacity	1GB/2GB/4GB/8GB	2GB/4GB/8GB	4GB/8GB
Function	Non-ECC Unbuffered Memory	Unbuffered Memory with ECC	Registered Memory with ECC
Pin Number	240pin	240pin	240pin
Width	64Bits	72Bits	72Bits
Voltage	1.5V/1.35V	1.5V/1.35V	1.5V/1.35V
PCB Height	0.738 Inches	0.738 Inches	0.738 Inches
Operating Temperature	0 ~ 85°C	0 ~ 85°C	0 ~ 85°C
Golden finger 30μ"	—	—	✓
Value-Added Service (Optional)	Conformal Coating / Side Fill		





Series	Very Low-Profile (VLP) Solution	
Module Type	DDR3 SODIMM	DDR2 LONG DIMM
Data Rate	1333 MT/s, 1600 MT/s	533 MT/s, 667 MT/s, 800 MT/s
Capacity	1GB/2GB/4GB/8GB	1GB/2GB
Function	Non-ECC Unbuffered Memory	Non-ECC Unbuffered Memory
Pin Number	204pin	240pin
Width	72Bits	64Bits
Voltage	1.5V/1.35V	1.8V
PCB Height	1 Inches	0.72 Inches
Operating Temperature	0 ~ 85°C	0 ~ 85°C
Value-Added Service (Optional)	Conformal Coating / Side Fill	

## MINI DIMM

DDR4 MINI DIMM and MINI RDIMM now available! All MINI DIMMs are targeted for high speed, high density, high performance telecommunication and cloud systems. The 0.72 inch high ULP MINI DIMM module is specifically designed for networking applications. They are compliant with JEDEC standards and are designed to improve airflow and thermal resistance. With the ECC function, the MINI DIMMs also ensure that data is corrected when corrupted data bits are found during data retrieval.



Series	MINI DIMM VLP	MINI RDIMM VLP
Module Type	DDR4 MINI DIMM	DDR4 MINI DIMM
Data Rate	2400 MT/s	
Capacity	4GB/8GB/16GB	4GB/8GB
Function	Unbuffered Memory with ECC	Registered Memory with ECC
Pin Number	288pin	
Width	72Bits	
Voltage	1.2V	1.2V
PCB Height	0.738 Inches	0.738 Inches
Operating Temperature	0 ~ 85°C	0 ~ 85°C
Golden finger 30μ"	✓	✓
Value-Added Service (*Optional)	Conformal Coating / Side Fill	



Series	MINI DIMM ULP	MINI RDIMM	MINI RDIMM VLP
Module Type	DDR3 MINI DIMM	DDR3 MINI DIMM	DDR3 MINI DIMM
Data Rate	1066 MT/s, 1333 MT/s, 1600 MT/s		
Capacity	2GB/4GB	8GB	2GB/4GB
Function	Unbuffered Memory with ECC	Registered Memory with ECC	Registered Memory with EC
Pin Number	244pin		
Width	72Bits		
Voltage	1.5V/1.35V	1.5V/1.35V	1.5V/1.35V
PCB Height	0.7 Inches	1.18 Inches	0.738 Inches
Operating Temperature	0 ~ 85°C	0 ~ 85°C	0 ~ 85°C
Golden finger 30μ"	✓	—	✓
Value-Added Service (*Optional)	Conformal Coating / Side Fill		

# Special / Customized

## XR-DIMM

In order to meet the high standards of the aerospace and defense industry, our XR-DIMM comes equipped with several advantages which will satisfy your expectation for robust DRAM modules. We offer three densities of DDR4 XR-DIMM, 4GB, 8GB & 16GB, both with an integrated error checking and correction function. With its 300-pin socket connector, Innodisk's XR-DIMM exceeds the pin number standard established by the SFF Special Interest Group (SFF-SIG), ensuring a firm connection between the CPU and DRAM module. This customized design enables XRDIMM to be highly resistant to shock and vibration, providing a more reliable performance for the aerospace and defense vertical market.



Series	XR-DIMM Solutions	
Module Type	DDR4 SODIMM	DDR4 SODIMM
Data Rate	2133MT/s, 2400MT/s	2133MT/s, 2400MT/s
Capacity	8GB/16GB	8GB/16GB
Function	Unbuffered Memory with ECC	Non-ECC Unbuffered Memory
Pin Number	300pin	300pin
Width	72Bits	64Bits
Voltage	1.2V	1.2V
PCB Height	1.18 Inches	1.18 Inches
Value-Added Service (Optional)	Conformal Coating / Side Fill	