

# 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 various systems' needs, and supports DDR5, DDR4, DDR3, DDR2, DDR, and SDRAM. Our DRAM modules are available in four product lines: Embedded, Server, Wide Temperature, and Special Customized.

Innodisk's comprehensive range of DRAM modules includes: Unbuffered DIMM, Unbuffered SODIMM, Unbuffered ECC DIMM, Unbuffered ECC SODIMM, Mini DIMM, and registered DIMM, Mini DIMM and VLP DIMM with three added-value selections: side fill, conformal coating, and heat spreader.

The logo for innodisk, featuring the word "innodisk" in white lowercase letters on a red rectangular background. A small red square is positioned above the letter "i".

**innodisk**

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# Product Line

DRAM Module		Long DIMM		SODIMM			Mini DIMM		
Function	I/F	Standard	VLP	Standard	VLP	XR-DIMM	Standard	VLP	ULP
Unbuffered	SDRAM			0.1 0.2 0.5					
	DDR1	0.5 1		0.2 0.5 1					
	DDR2	1 2 4	1 2	0.5 1 2 4					
	DDR3	2 4 8	2 4 8	1 2 4 8	2 4 8	4 8			
	DDR4	2 4 8 16 32	4 8 16 32	2 4 8 16 32	4 8				
ECC	DDR2	1 2							
	DDR3	2 4 8	2 4 8	2 4 8	2 4				2 4
	DDR4	4 8 16 32	4 8 16 32	4 8 16 32	4 8	8 16		4 8 16	
	DDR5	16 32		16 32					
Register	DDR3	2 4 8	4 8				8	2 4	
	DDR4	4 8 16 32	4 8 16 32	8 16				4 8	
	DDR5	16 32		16 32					










Red text means that *Wide Temperature* is included.

# Product Overview - Added Values

▲: Optional

			Wide Temperature	Free Anti-sulfuration	30μ" Gold Finger	Heat Spreader	Mounting Holes	Connector	iRAM	iSMART / iCAP	Conformal Coating	Side Fill
Embedded	DDR1	UDIMM				▲				▲	▲	▲
		SODIMM				▲				▲	▲	▲
	DDR2	UDIMM				▲				▲	▲	▲
		UDIMM VLP				▲				▲	▲	▲
		SODIMM	●			▲				▲	▲	▲
	DDR3	UDIMM	●			▲				▲	▲	▲
		UDIMM VLP				▲				▲	▲	▲
		SODIMM	●			▲				▲	▲	▲
		SODIMM VLP				▲				▲	▲	▲
	DDR4	UDIMM	●	●		▲				▲	▲	▲
		UDIMM VLP	●	●		▲				▲	▲	▲
		SODIMM	●	●		▲				▲	▲	▲
		SODIMM VLP		●		▲				▲	▲	▲
	DDR5	UDIMM		●		▲				▲	▲	▲
SODIMM			●		▲				▲	▲	▲	
Server	DDR2	ECC UDIMM			●	▲			●	▲	▲	▲
		ECC SODIMM	●		●	▲			●	▲	▲	▲
	DDR3	ECC UDIMM VLP			●	▲			●	▲	▲	▲
		ECC SODIMM	●		●	▲			●	▲	▲	▲
		ECC SODIMM VLP			●	▲			●	▲	▲	▲
		RDIMM			●	▲			●	▲	▲	▲
		RDIMM VLP			●	▲			●	▲	▲	▲
		Mini RDIMM			●	▲			●	▲	▲	▲
		Mini RDIMM VLP			●	▲			●	▲	▲	▲
		Mini ECC ULP			●	▲			●	▲	▲	▲
	DDR4	ECC UDIMM	●	●	●	▲			●	▲	▲	▲
		ECC UDIMM VLP		●	●	▲			●	▲	▲	▲
		ECC SODIMM	●	●	●	▲			●	▲	▲	▲
		ECC SODIMM VLP		●	●	▲			●	▲	▲	▲
		RDIMM	●	●	●	▲			●	▲	▲	▲
		RDIMM VLP	●	●	●	▲			●	▲	▲	▲
		SODIMM		●	●	▲			●	▲	▲	▲
		Mini ECC VLP		●	●	▲			●	▲	▲	▲
DDR5	Mini RDIMM VLP		●	●	▲			●	▲	▲	▲	
	ECC UDIMM		●	●	▲			●	▲	▲	▲	
	ECC SODIMM		●	●	▲			●	▲	▲	▲	
Customization	DDR3	RDIMM		●	●	▲			●	▲	▲	▲
		XR-DIMM	▲			▲	●	●		▲		▲
		ECC XR-DIMM	▲	●		▲	●	●	●	▲		▲
	DDR4	Rugged SODIMM		●		▲	●			▲		▲
		ECC Rugged SODIMM		●	●	▲	●		●	▲		▲

# Product Overview - Applications

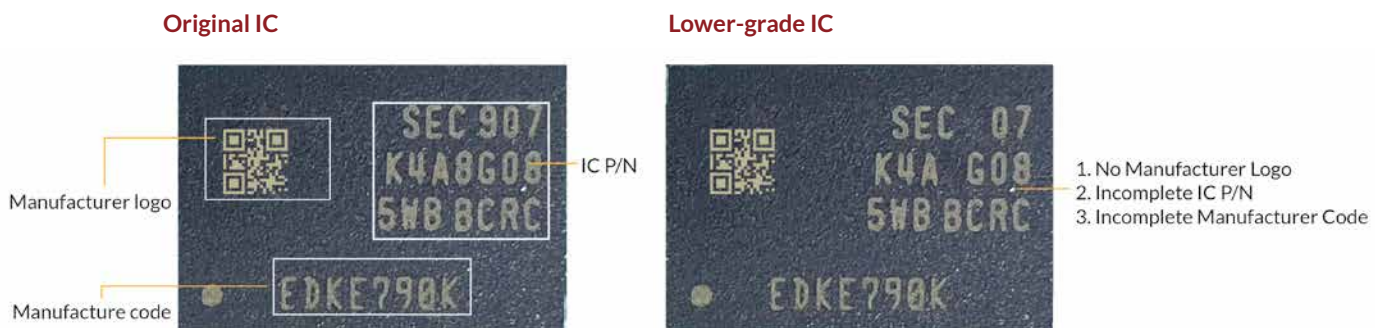
			Gaming	Medical	Retail	Automation	Surveillance	Networking	In-vehicle	Digital Signage	Aerospace
											
Embedded	DDR1	UDIMM									
		SODIMM	●			●	●	●	●	●	
	DDR2	UDIMM		●	●	●			●	●	
		UDIMM VLP		●			●				
		SODIMM	●		●	●	●		●	●	●
	DDR3	UDIMM	●	●	●	●			●	●	●
		UDIMM VLP					●				
		SODIMM	●	●	●	●	●		●	●	●
		SODIMM VLP					●		●		
	DDR4	UDIMM	●	●	●	●	●		●	●	
		UDIMM VLP		●			●		●		
		SODIMM	●	●	●	●	●		●	●	●
		SODIMM VLP		●			●				●
	DDR5	UDIMM	●			●			●	●	
SODIMM					●			●	●	●	
Server	DDR2	ECC UDIMM									
		SODIMM		●			●	●			
	DDR3	ECC UDIMM VLP					●		●		
		ECC SODIMM		●			●		●		
		ECC SODIMM VLP					●				
		RDIMM		●					●		●
		RDIMM VLP					●		●		●
		Mini RDIMM		●							
		Mini RDIMM VLP					●				
	Mini ECC ULP					●					
	DDR4	ECC UDIMM		●			●		●		
		ECC UDIMM VLP		●			●		●		
		ECC SODIMM		●					●	●	
		ECC SODIMM VLP		●			●		●		
		RDIMM		●		●			●		
		RDIMM VLP					●		●		
		SORDIMM									
		Mini ECC VLP					●				
Mini RDIMM VLP					●						
DDR5	ECC UDIMM								●		
	ECC SODIMM								●		
	RDIMM				●			●			
Wide Temperature	DDR2	SODIMM	●			●			●	●	
		UDIMM		●					●	●	
	DDR3	ECC UDIMM		●			●				
		SODIMM	●	●		●			●	●	●
		ECC SODIMM	●	●			●				●
		UDIMM		●					●	●	
	DDR4	UDIMM VLP					●				
		ECC UDIMM		●			●				
		ECC UDIMM VLP									
		SODIMM	●	●		●			●	●	●
ECC SODIMM		●	●			●				●	
RDIMM			●			●					
Customization	DDR3	XR-DIMM							●		●
		ECC XR-DIMM							●		●
	DDR4	ECC XR-DIMM							●		●
		Rugged SODIMM							●		●

# IC Grade

## IC Hierarchy

<b>Original IC</b>	<b>Original IC (Innodisk)</b> - Fully tested by major IC suppliers
<b>eTT</b>	<b>Effectively Tested DRAM</b> - Effectively tested but test patterns can vary by suppliers - Logo unmarked or only marked with partial IC part number
<b>uTT</b>	<b>Untested DRAM</b> - Untested - Logo unmarked
<b>Low Grade</b>	<b>Low Grade</b> - DRAM IC with unknown quality confirmed as not having parts with full data sheets

## Distinguishing Original from Lower-grade IC



## Why do we only use "Original IC?"

### 1. Top Quality

Since Innodisk primarily operates in industrial markets where applications face significant environmental challenges, Innodisk products are required to be long-lasting and meet stringent quality requirements—which in turn necessitates the highest-quality components, and IC is no exception.

While the higher quality of original IC is a primary consideration, Innodisk also uses original IC for the international expertise and experience provided by the IC manufacturer. Together with the IC manufacturer, Innodisk can offer the most thorough guarantee, ensuring that customers are equipped to face any challenges in their way.

Further, only high-quality original ICs satisfy the strict requirements posed by applications in the growing 5G and AIoT markets. With heavy workloads and a need for high-performance components, such applications in the embedded and industrial markets only live up to their full potential with original IC.

### 2. Original Manufacturer Report

Any device operating under long periods of time will be susceptible to breakdowns and damage. The original manufacturer can not only help recycle faulty products and repair damaged ICs, but also provides a complete repair report. This will allow the customer to better understand the reason behind the malfunction and take the necessary steps to avoid future occurrences. However, the original manufacturer will not acknowledge lower-grade ICs (as these are third-party products) and will neither provide any repair reports.

# Embedded

## Embedded UDIMM

UDIMM 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, DDR3L, DDR4 and DDR5.



Series	Standard Solution		
Module Type	DDR5 UDIMM	DDR4 UDIMM	DDR3 UDIMM
Data Rate	4800 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933 MT/s, 3200 MT/s	1066 MT/s, 1333 MT/s, 1600 MT/s, 1866 MT/s
Capacity	8GB/16GB/32GB	2GB/4GB/8GB/16GB/32GB	2GB/4GB/8GB
Function	Non-ECC Unbuffered Memory		
Number of Pins	288pin	288pin	240pin
Width	64Bits	64Bits	64Bits
Voltage	1.1V	1.2V	1.5V/1.35V
PCB Height	1.23 Inches	1.23 Inches	1.18 Inches
Operating Temperature	0-85°C	0-85°C	0-85°C
Anti-sulfuration	√ (Included for Free)	√ (Included for Free)	—
Value-added Service (Optional)	Conformal Coating, Side Fill, Heat Spreader		



Series	Standard Solution	
Module Type	DDR2 UDIMM	DDR UDIMM
Data Rate	533 MT/s, 667 MT/s, 800 MT/s	333 MT/s, 400 MT/s
Capacity	1GB/2GB/4GB	512MB/1GB
Function	Non-ECC Unbuffered Memory	
Number of Pins	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
Anti-sulfuration	—	—
Value-added Service (Optional)	Conformal Coating, Side Fill, Heat Spreader	

## 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	DDR5 SODIMM	DDR4 SODIMM	DDR3 SODIMM
Data Rate	4800 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933 MT/s, 3200 MT/s	1066 MT/s, 1333 MT/s, 1600 MT/s, 1866 MT/s
Capacity	8GB/16GB/32GB	2GB/4GB/8GB/16GB/32GB	1GB/2GB/4GB/8GB
Function	Non-ECC Unbuffered Memory		
Number of Pins	262pin	260pin	204pin
Width	64Bits	64Bits	64Bits
Voltage	1.1V	1.2V	1.5V/1.35V
PCB Height	1.18 Inches	1.18 Inches	1.18 Inches
Operating Temperature	0-85°C	0-85°C	0-85°C
Anti-sulfuration	√ (Included for Free)	√ (Included for Free)	—
Value-added Service (Optional)	Conformal Coating, Side Fill, Heat Spreader		



Series	Standard Solution		
Module Type	DDR2 SODIMM	DDR SODIMM	SDRAM SODIMM
Data Rate	533 MT/s, 667 MT/s, 800 MT/s	333 MT/s, 400 MT/s	100 MT/s, 133 MT/s
Capacity	512MB/1GB/2GB/4GB	256MB/512MB/1GB	128MB/256MB/512MB
Function	Non-ECC Unbuffered Memory		
Number of Pins	200pin	200pin	144pin
Width	64Bits	64Bits	64Bits
Voltage	1.8V	2.6V	3.3V
PCB Height	1.18 Inches	1.25 Inches	1.25 Inches
Operating Temperature	0-85°C	0-70°C	0-70°C
Anti-sulfuration	—	—	—
Value-added Service (Optional)	Conformal Coating, Side Fill, Heat Spreader		

# Server

## Registered DIMM

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



Series	Server Solution		
Module Type	DDR5 RDIMM	DDR4 RDIMM	DDR3 RDIMM
Data Rate	4800MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933MT/s, 3200MT/s	1066 MT/s, 1333 MT/s, 1600 MT/s, 1866 MT/s
Capacity	16GB/32GB	4GB/8GB/16GB/32GB	2GB/4GB/8GB
Function	Registered Memory with ECC		
Number of Pins	288pin	288pin	240pin
Width	72Bits	72Bits	72Bits
Voltage	1.1V	1.2V	1.5V/1.35V
PCB Height	1.23 Inches	1.23 Inches	1.18 Inches
Operating Temperature	0-85°C	0-85°C	0-85°C
Golden finger 30μ"	√	√	√
Anti-sulfuration	√ (Included for Free)		—

## 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 30μ" 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 WT UDIMM	DDR4 WT UDIMM VLP	DDR4 WT SODIMM
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933MT/s, 3200MT/s	2133 MT/s, 2400 MT/s, 2666MT/s, 2933MT/s, 3200MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933MT/s, 3200MT/s
Capacity	4GB/8GB/16GB/32GB	8GB/16GB//32GB(sorting WT) 32GB is only for 2666 MT/s	4GB/8GB/16GB/32GB
Function	Non-ECC Unbuffered Memory		
Number of Pins	288pin	288pin	260pin
Width	64Bits	64Bits	64Bits
Voltage	1.2V	1.2V	1.2V
PCB Height	1.23 Inches	0.738 Inches	1.18 Inches
Operating Temperature	-40-85°C	-40-85°C	-40-85°C
Golden finger 30μ"	√	√	√
Anti-sulfuration	√ (Included for Free)	√ (Included for Free)	√ (Included for Free)
Value-added Service (Optional)	Conformal Coating, Side Fill, Heat Spreader		



Series	Wide Temperature Solution		
Module Type	DDR3 WT UDIMM	DDR3 WT SODIMM	DDR2 WT 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	533 MT/s, 667 MT/s, 800 MT/s
Capacity	2GB/4GB/8GB	2GB/4GB/8GB	1GB/2GB
Function	Non-ECC Unbuffered Memory		
Number of Pins	240pin	204pin	200pin
Width	64Bits	64Bits	64Bits
Voltage	1.5V/1.35V	1.5V/1.35V	1.8V
PCB Height	1.18 Inches	1.18 Inches	1.18 Inches
Operating Temperature	-40-85°C	-40-85°C	-40-85°C
Golden finger 30μ"	√	√	√
Anti-sulfuration	—	—	—
Value-added Service (Optional)	Conformal Coating, Side Fill, Heat Spreader		

## 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 WT ECC UDIMM	DDR4 WT ECC SODIMM	DDR3 WT ECC UDIMM	DDR3 WT ECC SODIMM
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933MT/s, 3200MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933MT/s, 3200MT/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/32GB	4GB/8GB/16GB/32GB	2GB/4GB/8GB	2GB/4GB/8GB
Function	ECC Unbuffered Memory			
Number of Pins	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"	√	√	√	√
Anti-sulfuration	√ (Included for Free)	√ (Included for Free)	—	—
Value-added Service (Optional)	Conformal Coating, Side Fill, Heat Spreader			

## Ultra Temperature SODIMM

Our new DDR4 Ultra Temperature solution, modules are designed to operate in temperatures from -40°C to 125°C, and free upgrade to 45μ" gold finger with Side Fill.



Series	Wide Temperature Solution	
Module Type	DDR4 WT SODIMM	DDR4 WT ECC SODIMM
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933MT/s, 3200MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933MT/s, 3200MT/s
Capacity	16GB/32GB	16GB/32GB
Function	Non-ECC Unbuffered Memory	ECC Unbuffered Memory
Number of Pins	260pin	260pin
Width	64Bits	72Bits
Voltage	1.2V	1.2V
PCB Height	1.18 Inches	1.18 Inches
Operating Temperature	-40-125°C	-40-125°C
Golden finger 30μ"	√ (upgrade to 45μ")	
Anti-sulfuration	√ (Included for Free with Side Fill)	
Value-added Service (Optional)	Conformal Coating, Heat Spreader	



## Wide Temperature Registered DIMM

Designed for industrial systems, Innodisk's Wide Temperature DRAM modules are best suited for applications that must work in extreme temperatures. These modules use industrial-grade SDRAM components with 30μ" 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 WT RDIMM	DDR4 WT RDIMM VLP
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933MT/s, 3200MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933MT/s, 3200MT/s
Capacity	4GB/8GB/16GB/32GB	4GB/8GB/16GB 4GB* is only for 2133MT/s and 2400MT/s
Function	Registered Memory with ECC	
Number of Pins	288pin	288pin
Width	72Bits	72Bits
Voltage	1.2V	1.2V
PCB Height	1.23 Inches	0.738 Inches
Operating Temperature	-40-85°C	-40-85°C
Golden finger 30μ"	✓	✓
Anti-sulfuration	✓ (Included for Free)	✓ (Included for Free)
Value-added Service (Optional)	Conformal Coating, Side Fill	

## ECC DIMM

ECC modules are designed to detect and correct single-bit errors (DDR5 allows double-bit) 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	ECC Unbuffered DIMM Solution	
Module Type	DDR5 ECC UDIMM	DDR5 ECC SODIMM
Data Rate	4800 MT/s	4800 MT/s
Capacity	16GB/32GB	16GB/32GB
Function	ECC Unbuffered Memory	
Number of Pins	288pin	262pin
Width	72Bits	72Bits
Voltage	1.1V	1.1V
PCB Height	1.23 Inches	1.18 Inches
Operating Temperature	0-85°C	0-85°C
Golden finger 30μ"	✓	✓
Anti-sulfuration	✓ (Included for Free)	✓ (Included for Free)
Value-added Service (Optional)	Conformal Coating, Side Fill, Heat Spreader	



Series	ECC Unbuffered DIMM Solution	
Module Type	DDR4 ECC UDIMM	DDR4 ECC SODIMM
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933MT/s, 3200MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933MT/s, 3200MT/s
Capacity	4GB/8GB/16GB/32GB	4GB/8GB/16GB/32GB
Function	ECC Unbuffered Memory	
Number of Pins	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"	✓	✓
Anti-sulfuration	✓ (Included for Free)	✓ (Included for Free)
Value-added Service (Optional)	Conformal Coating, Side Fill, Heat Spreader	



Series	ECC Unbuffered DIMM Solution		
Module Type	DDR3 ECC UDIMM	DDR3 ECC SODIMM	DDR2 ECC UDIMM
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	667 MT/s, 800 MT/s
Capacity	2GB/4GB/8GB	2GB/4GB/8GB	1GB/2GB
Function	ECC Unbuffered Memory		
Number of Pins	240pin	204pin	204pin
Width	72Bits	72Bits	72Bits
Voltage	1.5V/1.35V	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
Golden finger 30μ"	✓	✓	✓
Anti-sulfuration	—	—	—
Value-added Service (Optional)	Conformal Coating, Side Fill, Heat Spreader		

## Very Low-Profile (VLP) DIMM and Ultra Low-Profile (ULP) DIMM

**Very Low-Profile (VLP) DIMM** modules and **Ultra Low-Profile (ULP) DIMM** modules are specialized for use in 1U systems, such as blade server data centers, where the system height is lower than 1.18 inches (SODIMM PCB height). The design of these modules improves air flow inside compact systems and reduces the thermal impact.



Series	Very Low-Profile (VLP) Solution		
Module Type	DDR4 UDIMM VLP	DDR4 ECC UDIMM VLP	DDR4 SODIMM VLP
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s
Capacity	4GB/8GB/16GB/32GB 32GB* is only for 2666MT/s	4GB/8GB/16GB/32GB 32GB* is only for 2666MT/s	4GB/8GB
Function	Non-ECC Unbuffered Memory	ECC Unbuffered Memory	Non-ECC Unbuffered Memory
Number of Pins	288pin	288pin	260pin
Width	64Bits	72Bits	64Bits
Voltage	1.2V	1.2V	1.2V
PCB Height	0.738 Inches	0.738 Inches	0.7 Inches
Operating Temperature	0-85°C	0-85°C	0-85°C
Golden finger 30μ"	—	✓	—
Anti-sulfuration	✓ (Included for Free)	✓ (Included for Free)	✓ (Included for Free)
Value-added Service (Optional)	Conformal Coating, Side Fill, Heat Spreader		



Series	Very Low-Profile (VLP) Solution	
Module Type	DDR4 ECC SODIMM VLP	DDR4 RDIMM VLP
Data Rate	2133 MT/s, 2400 MT/s, 2666 MT/s	2133 MT/s, 2400 MT/s, 2666 MT/s, 2933MT/s, 3200MT/s
Capacity	4GB/8GB	4GB/8GB/16GB/32GB
Function	ECC Unbuffered Memory	Registered Memory with ECC
Number of Pins	260pin	288pin
Width	72Bits	72Bits
Voltage	1.2V	1.2V
PCB Height	0.7 Inches	0.738 Inches
Operating Temperature	0-85°C	0-85°C
Golden finger 30μ"	✓	✓
Anti-sulfuration	✓ (Included for Free)	✓ (Included for Free)
Value-added Service (Optional)	Conformal Coating, Side Fill, Heat Spreader	



Series	Very Low-Profile (VLP) Solution		
Module Type	DDR3 UDIMM VLP	DDR3 ECC UDIMM VLP	DDR3 SODIMM VLP
Data Rate	1066 MT/s, 1333 MT/s, 1600 MT/s, 1866 MT/s	1333 MT/s, 1600 MT/s, 1866 MT/s	1333 MT/s, 1600 MT/s, 1866 MT/s
Capacity	2GB/4GB/8GB	2GB/4GB/8GB	2GB/4GB/ 8GB
Function	Non-ECC Unbuffered Memory	ECC Unbuffered Memory	Non-ECC Unbuffered Memory
Number of Pins	240pin	240pin	204pin
Width	64Bits	72Bits	64Bits
Voltage	1.5V/1.35V	1.5V/1.35V	1.5V/1.35V
PCB Height	0.738 Inches	0.738 Inches	1.0 Inches
Operating Temperature	0-85°C	0-85°C	0-85°C
Golden finger 30μ"	—	√	—
Anti-sulfuration	—	—	—
Value-added Service (Optional)	Conformal Coating, Side Fill, Heat Spreader		



Series	Ultra Low-Profile (ULP) Solution	Very Low-Profile (VLP) Solution
Module Type	DDR3 ECC SODIMM ULP	DDR3 RDIMM VLP
Data Rate	1333 MT/s, 1600 MT/s	1333 MT/s, 1600 MT/s, 1866 MT/s
Capacity	2GB/4GB	4GB/8GB
Function	ECC Unbuffered Memory	Registered Memory with ECC
Number of Pins	204pin	240pin
Width	72Bits	72Bits
Voltage	1.5V/1.35V	1.5V/1.35V
PCB Height	0.709 Inches	0.738 Inches
Operating Temperature	0-85°C	0-85°C
Golden finger 30μ"	√	√
Anti-sulfuration	—	—
Value-added Service (Optional)	Conformal Coating, Side Fill, Heat Spreader	

## Mini DIMM

All Mini DIMMs offer high speed, high density, high performance for telecommunication and cloud systems. The 0.72 inch ULP Mini DIMM modules are 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 Solution	
Module Type	DDR4 Mini DIMM ECC VLP	DDR4 Mini RDIMM VLP
Data Rate	2400 MT/s	
Capacity	4GB/8GB/16GB	4GB/8GB
Function	ECC Unbuffered Memory	Registered Memory with ECC
Number of Pins	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"	√	√
Anti-sulfuration	√ (Included for Free)	√ (Included for Free)
Value-added Service (Optional)	Conformal Coating, Side Fill, Heat Spreader (only for Mini DIMM & VLP)	



Series	Mini DIMM Solution		
Module Type	DDR3 Mini DIMM ECC ULP	DDR3 Mini RDIMM	DDR3 Mini RDIMM VLP
Data Rate	1600 MT/s		
Capacity	2GB/4GB	8GB	2GB/4GB
Function	ECC Unbuffered Memory	Registered Memory with ECC	Registered Memory with ECC
Number of Pins	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"	✓	✓	✓
Anti-sulfuration	—	—	—
Value-added Service (Optional)	Conformal Coating, Side Fill, Heat Spreader (only for Mini DIMM & VLP)		

## Special / Customized



### XR-DIMM

In order to meet the high standards of the aerospace industry, our XR-DIMM comes equipped with several advantages which will satisfy your expectations for robust DRAM modules. We offer two densities of DDR4 XR-DIMM, 8GB & 16GB, both with an integrated error checking and correction function. With their 300-pin socket connectors, Innodisk's XR-DIMM modules exceed the Small Form Factor Special Interest Group's (SFF-SIG) pin number standard, ensuring an even firmer connection between the CPU and DRAM module. This customized design makes Innodisk's XR-DIMM modules highly resistant to shocks and vibrations, making them a great choice for reliable performance in the aerospace industry.

Series	XR-DIMM Solutions			
Module Type	DDR4 XR-DIMM		DDR3 XR-DIMM	
Data Rate	2400 MT/s, 2666 MT/s		1600MT/s, 1866 MT/s	
Capacity	8GB/16GB		4GB/8GB	
Function	ECC Unbuffered Memory	Non-ECC Unbuffered Memory	ECC Unbuffered Memory	Non-ECC Unbuffered Memory
Number of Pins	300pin		300pin	
Width	72Bits	64Bits	72Bits	64Bits
Voltage	1.2V		1.5V/1.35V	
PCB Height	1.18 Inches		1.49 Inches	
Anti-sulfuration	✓ (Included for Free)		—	
Mounting Hole	2		2	
Value-added Service (Optional)	Side Fill			
Operating Temperature	Commercial 0-85°C		Wide Temperature -40-85°C	

### Rugged SODIMM

Innodisk's rugged wide-temperature SODIMM modules are designed to continue operating at an optimal level even in extreme temperature conditions. With two mounting holes to ensure a shock and vibration-resistant connection to the motherboard, as well as error checking and correcting (ECC) functions, these SODIMM modules are the ideal choice for applications in extreme environments.

By using a standard SODIMM connector, these rugged wide-temperature DRAM modules can be used on regular motherboards without requiring any modifications to the board or its connectors. Moreover, with customizable PCB height, Innodisk's rugged wide-temperature SODIMM modules can guarantee a perfect fit in any application and environment.



Series	Rugged SODIMM Solutions	
Module Type	DDR4 Rugged SODIMM	
Data Rate	2133MT/s, 2400MT/s, 2666MT/s	
Capacity	8GB/16GB/32GB(32GB is only for ECC)	
Function	Non-ECC/ECC	
Number of Pins	260 pin	
Width	72Bits	
Voltage	1.2V	
PCB Height	1.338 Inches	
Anti-sulfuration	✓ (Included for Free)	
Value-added Service (Optional)	Side Fill, Heat Spreader	
Operating Temperature	Commercial 0-85°C	Wide Temperature -40-85°C