PRODUCT RELEASE NOTICE

High Density DDR4 32GB and 64GB Modules

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1 Product Features and Availability

IM is now offering its new generation "B-Die" of high density DDR4 16Gb in x4, x8 and x16 in commercial temperature with speed up to 1600MHz (PC4-3200). The Industrial Temperature version will be released in Q2 2025.

With the new B-Die DDR4 16Gb x4 and x8, IM can also offer 7 different types of high density DDR4 DRAM Modules for high density demanding applications.

Product Specifications:

Product List DDR4 32GB Memory Modules				
Part Number	**Org.**	**Rank**	**Speed**	**Temperature**
IMM4G64D4DUD8AG-B062	32GB UDIMM	2	PC4-25600	Commercial
IMM4G72D4DUD8AG-B062	32GB ECC UDIMM	2	PC4-25600	Commercial
IMM4G64D4SOD8AG-B062	32GB SODIMM	2	PC4-25600	Commercial
IMM4G72D4SOD8AG-B062	32GB ECC SDOIMM	2	PC4-25600	Commercial
IMM4G72D4RVD8AG-B062	32GB VLP RDIMM	2	PC4-25600	Commercial
IMM4G72D4RVS4AG-B062	32GB VLP RDIMM	1	PC4-25600	Commercial

Product List DDR4 64GB Memory Modules				
Part Number	**Org.**	**Rank**	**Speed**	**Temperature**
IMM8G72D4RDD4AG-B062	64GB RDIMM	2	PC4-25600	Commercial

DRAM Module Key features:

- Offered in different form factors in SODIMM, UDIMM, VLP RDIMM, RDIMM, with ECC optional features for SODIMM & UDIMM
- 64GB high density RDIMM with speed up to PC4-25600 in 2 ranks using x4 components
- 32GB high density VLP RDIMM with speed up to PC4-25600 in 1 rank using x4 components OR 2 ranks using x8 components
- 32GB high density ECC SODIMM, ECC UDIMM, SODIMM and UDIMM, both are configured in 2 ranks with x8 components.
- Longevity support

Data sheet:

Version: Preliminary available.

Samples Availability:

32GB Modules:
SODIMM and UDIMM (Nov-2024)
ECC SODIMM and ECC SODIMM (Dec-2024)
VLP RDIMM (Dec-2024)

64GB Module
RDIMM (Dec-2024)

2 Technology Background

Using DDR4 memory over older types like DDR3 or DDR2 offers several advantages:

1. **Higher Speed:** DDR4 provides significantly higher data transfer rates, starting at 2133 MHz and going up to 3200 MHz or more, which translates to faster performance in applications and multitasking.

2. **Increased Capacity:** DDR4 supports higher density memory chips, allowing for larger memory modules. This means you can have up to 64 GB per DIMM, which is beneficial for memory-intensive tasks like video editing, 3D rendering, and large database operations.

3. **Lower Power Consumption:** DDR4 operates at a lower voltage (1.2V) compared to DDR3 (1.5V) and DDR2 (1.8V). This reduction in power consumption helps in reducing heat generation and improving energy efficiency, which is particularly important for laptops and servers.

4. **Improved Reliability:** DDR4 includes features like cyclic redundancy checks (CRC) and on-chip parity detection, which enhance data integrity and reduce the likelihood of data corruption.

5. **Better Performance in Multitasking:** With higher bandwidth and faster speeds, DDR4 can handle more simultaneous tasks without slowing down, making it ideal for modern computing environments where multitasking is common.

3 Applications and Market Segments

DDR4 memory is widely used across various applications and market segments due to its high performance, capacity, and efficiency. Here are some key applications and market segments for DDR4:

Applications

1. **Personal Computers and Laptops**: DDR4 is commonly used in desktops and laptops, providing faster data transfer rates and improved multitasking capabilities.
2. **Servers and Data Centers**: Due to its high capacity and reliability, DDR4 is extensively used in servers and data centers to handle large volumes of data and ensure smooth operations.
3. **Mobile Devices**: DDR4 is also used in high-end smartphones and tablets, offering better performance and energy efficiency.
4. **Gaming Consoles**: The high bandwidth and low latency of DDR4 make it ideal for gaming consoles, enhancing gaming performance and experience.
5. **Embedded Systems**: DDR4 is used in various embedded systems, including automotive electronics and industrial applications, where reliable and fast memory is crucial.

Market Segments

1. **Consumer Electronics**: This segment includes personal computers, laptops, and mobile devices, where DDR4 is used to enhance performance and efficiency.
2. **Enterprise and Data Centers**: This segment covers servers and data centers that require high-capacity and reliable memory solutions to manage large-scale data processing and storage.
3. **Automotive**: DDR4 is used in advanced driver-assistance systems (ADAS), infotainment systems, and other automotive applications that require robust and fast memory.
4. **Industrial**: DDR4 is utilized in industrial automation, robotics, and other applications that demand high-performance memory for real-time processing and control.

4 Market Share and Competition

As of the second quarter of 2024, DDR4 continues to hold a significant share of the DRAM market. Here are some key points:

1. **Market Dominance**: DDR4 accounted for a substantial portion of the DRAM market, with sales making up a significant percentage of overall DRAM revenues[1].

2. **Leading Manufacturers:** The major players in the DRAM market include Samsung, SK Hynix, and Micron. In Q2 2024, Samsung held a 42.9% market share, SK Hynix had 34.5%, and Micron had 19.6%[2].

3. **Transition to DDR5:** While DDR4 remains dominant, the market is gradually transitioning to DDR5, which is expected to overtake DDR4 in the coming years