

UNLIMITED INGENUITY



# DRAM COMPONENTS & MODULES



**IM** provides DRAM Components and Modules with varying form factors, rare densities, configurations, features and package types over a number of different DRAM product categories.

IM is proud to have pioneered dual die and quad die, while continuously putting in the time and effort to regularly increase the densities in our product offering. From standard to specialized, our low-volume, high-mix solutions are optimized to offer an assortment of products with high sustained performance, stability, and endurance.

IM provides two lines of DRAM Modules, allowing for more flexibility and customization:

- **IMOriginal** modules which utilize exclusively IM's own quality components
- **IMSelect** modules which can be configured with various third-party components

Both options are produced and tested by IM in-house. All of IM's DRAM modules are highly reliable, with built-in error correction (ECC) features available and long-term support.

**DURABILITY   RELIABILITY   LONGEVITY**



For more information or to request samples, please visit us at [www.intelligentmemory.com](http://www.intelligentmemory.com)

You may also contact our sales team directly at [sales@intelligentmemory.com](mailto:sales@intelligentmemory.com)

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- Densities: 4Gb, 8Gb, 16Gb, & 32Gb
- x8, x16 organization support, and x4 for high-density solutions
- 1.2V (VDD, VDDQ), and 2.5V VPP
- High data transfer rates: Support up to 3200Mbps

- Densities: 1Gb, 2Gb, 4Gb, 8Gb & 16Gb
- x8, x16 organization support, and x4 for 4Gb & 8Gb
- Full product range of 8Gb (x4, x8 & x16) in 1CS or 2CS
- 1.35V and 1.5V Power Supply
- High data transfer rates: Support up to 2133Mbps

- Densities: 512Mb, 1Gb & 2Gb
- x8, x16 organization support, and x4 for 2Gb
- 1.8V Power Supply
- High data transfer rates: Support up to 1066Mbps

- Densities: 256Mb, 512Mb & 1Gb
- x8, x16 organization support
- 2.5V Power Supply
- High data transfer rates: Support up to 400Mbps

- Densities: 64Mb, 128Mb, 256Mb & 512Mb
- x8, x16, x32 organization support
- 3.3V Power Supply
- High data transfer rates: Support up to 200Mbps

- Densities: 2Gb up to 64Gb
- 1 channel (x16), 1 rank
- 2 channels (x32), 1 rank or 2 ranks
- Low-Power Consumption:
  - LPDDR4
    - 1.8V VDD1
    - 1.1V VDD2
    - 1.1V VDDQ
  - LPDDR4X
    - 1.8V VDD1
    - 1.1V VDD2
    - 0.6V VDDQ
- High data transfer rates: Support up to 4266Mbps
- 200-Ball FBGA
- Integrated ECC available for 4Gb & 8Gb

- Densities: 8Gb x32 (1 rank) & 16Gb x32 (2 rank) are available
- Low-Power Consumption: 1.8V (VDD1) & 1.2V (VDD2, VDDQ)
- High data transfer rates: Support up to 1866Mbps
- 178-Ball FBGA

- Densities: 4Gb x32, 2Gb x32 & 1Gb x16 are available
- Low-Power Consumption: 1.8V (VDD1) & 1.2V (VDD2, VDDQ)
- High data transfer rates: Support up to 1066Mbps
- 134-Ball FBGA

| DRAM Components*                                                                                             | 64Mb                                                                                                                                          | 128Mb | 256Mb | 512Mb | 1Gb | 2Gb | 4Gb | 8Gb | 16Gb | 24Gb | 32Gb | 64Gb |
|--------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-----|-----|-----|-----|------|------|------|------|
| SDRAM                                                                                                        | ✓                                                                                                                                             | ✓     | ✓✓    | ✓✓    |     |     |     |     |      |      |      |      |
| DDR                                                                                                          |                                                                                                                                               |       | ✓     | ✓     | ✓✓  |     |     |     |      |      |      |      |
| DDR2                                                                                                         |                                                                                                                                               |       |       | ✓     | ✓✓  | ✓✓  |     |     |      |      |      |      |
| DDR3L                                                                                                        |                                                                                                                                               |       |       |       | ✓✓  | ✓   | ✓   | ✓✓  | ✓    |      |      |      |
| DDR4                                                                                                         |                                                                                                                                               |       |       |       |     |     | ✓   | ✓   | ✓✓   |      | ✓    |      |
| DDR5                                                                                                         |                                                                                                                                               |       |       |       |     |     |     |     | ✓    |      |      |      |
| LPDDR2                                                                                                       |                                                                                                                                               |       |       |       | ✓   | ✓   | ✓   |     |      |      |      |      |
| LPDDR3                                                                                                       |                                                                                                                                               |       |       |       |     |     |     | ✓   | ✓    |      |      |      |
| LPDDR4                                                                                                       |                                                                                                                                               |       |       |       |     | ✓   | ✓✓  | ✓✓  | ✓    |      | ✓    | ✓    |
| LPDDR4x                                                                                                      |                                                                                                                                               |       |       |       |     |     | ✓   | ✓   | ✓    | ✓    | ✓    | ✓    |
| Features:                                                                                                    | <div><div>✓ Available Now</div><div>✓ On-chip ECC option available</div><div>✓ x4 configuration available</div><div>✓ Coming soon</div></div> |       |       |       |     |     |     |     |      |      |      |      |
| *BGA Leaded Balls package option available: AEC-O parts offered upon request. Please contact IM for details. |                                                                                                                                               |       |       |       |     |     |     |     |      |      |      |      |

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- Form Factors: Non-ECC UDIMM, ECC UDIMM, Non-ECC SODIMM, ECC SODIMM & RDIMM
- Higher bandwidth performance (up to PC5-44800)
- PCB Height: Standard and Very Low Profile
- Capacity: 8GB to 64GB
- PCB Height: Standard & VLP
- JEDEC Standard 1.1V

- Form Factors: Non-ECC UDIMM, ECC UDIMM, Non-ECC SODIMM, ECC SODIMM, LRDIMM, RDIMM, Mini-RDIMM & ECC Mini-UDIMM
- Higher bandwidth performance (up to PC3-14900)
- Capacities: 1GB to 32GB
- PCB Height: Standard, VLP & ULP
- JEDEC Standard 1.35V & 1.5V

- Form Factors: Non-ECC UDIMM, ECC UDIMM, Non-ECC SODIMM, ECC SODIMM & RDIMM
- Higher bandwidth performance (up to PC-3200)
- Capacities: 256MB to 2GB
- PCB Height: Standard & VLP
- JEDEC Standard 2.5V

- Form Factors: Non-ECC UDIMM, ECC UDIMM, non-ECC SODIMM, ECC SODIMM, RDIMM, Mini-RDIMM & ECC Mini-UDIMM
- Higher bandwidth performance (up to PC4-25600)
- Capacities: 2GB to 128GB
- PCB Height: Standard, VLP & ULP
- JEDEC Standard 1.2V

- Form Factors: Non-ECC UDIMM, ECC UDIMM, Non-ECC SODIMM, ECC SODIMM, RDIMM & Mini-RDIMM
- Higher bandwidth performance (up to PC2-6400)
- Capacities: 512MB to 8GB
- PCB Height: Standard, VLP
- JEDEC Standard 1.8V

- Form Factors: Non-ECC UDIMM, ECC UDIMM  
Non-ECC SODIMM & ECC SODIMM
- Higher bandwidth performance (up to PC-133)
- Capacities: 128MB to 512MB
- PCB Height: Standard
- JEDEC Standard 3.3V

**IMS = IMSelect**

| DRAM Modules                      | LRDIMM                                                                                                                                                                  | RDIMM          | UDIMM           | RSODIMM        | SODIMM          | MINI-RDIMM      | MINI-UDIMM     |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|----------------|-----------------|-----------------|----------------|
| SDRAM (3.3V, max: PC-133)         |                                                                                                                                                                         |                | ✓<br>Max: 512MB |                | ✓<br>Max: 512MB |                 |                |
| DDR (2.5V, max: PC-3200)          |                                                                                                                                                                         | ✓<br>Max: 1GB  | ✓<br>Max: 1GB   |                | ✓<br>Max: 1GB   |                 |                |
| DDR2 (1.8V, max: PC2-6400)        |                                                                                                                                                                         | ✓<br>Max: 8GB  | ✓<br>Max: 4GB   |                | ✓<br>Max: 4GB   | ✓<br>Max: 512MB |                |
| DDR3 (1.5V/1.35V, max: PC3-14900) | ✓<br>Max: 32GB                                                                                                                                                          | ✓<br>Max: 32GB | ✓<br>Max: 16GB  | ✓<br>Max: 16GB | ✓<br>Max: 16GB  | ✓<br>Max: 16GB  | ✓<br>Max: 16GB |
| DDR4 (1.2V, max: PC4-25600)       | ✓<br>Max: 64GB                                                                                                                                                          | ✓<br>Max: 64GB | ✓<br>Max: 32GB  |                | ✓<br>Max: 32GB  | ✓<br>Max: 16GB  | ✓<br>Max: 32GB |
| DDR5 (1.1V, max: PC5-44800)       |                                                                                                                                                                         | ✓<br>Max: 32GB | ✓<br>Max: 32GB  |                | ✓<br>Max: 32GB  |                 |                |
| Features:                         | ✓ <b>ECC or Non-ECC are optional</b><br>✓ <b>VLP / ULP (Very Low Profile / Ultra Low Profile) are available</b><br>✓ <b>Available now</b><br>✓ <b>128GB Coming Soon</b> |                |                 |                |                 |                 |                |

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## SPOTLIGHT PRODUCTS

### DRAM Modules:

- High Density **IMOriginal** 128BG, 64GB & 32GB DDR4
- Industrial Standard **IMSelect** DDR5
- Longevity for 7 years+ and long-term support on legacy technologies DDR3 through SDRAM

### DRAM Components:

- High Density 32Gb & 16Gb DDR4
- Comprehensive Range of LPDDR4 & LPDDR4x
- High Density 16Gb & 8Gb DDR3
- DDR5 coming soon

## KEY FEATURES

### DRAM Modules:

- **IMOriginal** Modules use IM's own quality components
- **IMSelect** Modules use third-party components
- Long product lifetimes with continued support
- Fixed BOM
- IM designs, manufactures, tests and supports all kinds of technical & after-sales services
- Additional Service Options Available
  - Fully RoHS (without exemption)
  - Conformal Coating
  - Anti-Sulphuration

## APPLICATIONS

**Aerospace & Defense:** Avionics systems, satellite communication systems, and military-grade computing platforms

**Automotive Systems:** Infotainment systems, advanced driver-assistance systems (ADAS), and in-vehicle networking

**Embedded Systems:** Industrial IoT devices, smart sensors, and control systems

**Industrial Automation:** Programmable logic controllers (PLCs), robotics, and machine vision systems

**Medical Devices:** Patient monitors, diagnostic equipment, and imaging systems

**Networking Infrastructure:** Routers, switches, and gateways

**Portable Electronics:** Tablets, laptops, POS

**Test & Measurement Instruments:** Oscilloscopes, spectrum analyzers, and data loggers



For more information or to request samples, please visit us at [www.intelligentmemory.com](http://www.intelligentmemory.com)

You may also contact our sales team directly at [sales@intelligentmemory.com](mailto:sales@intelligentmemory.com)

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