

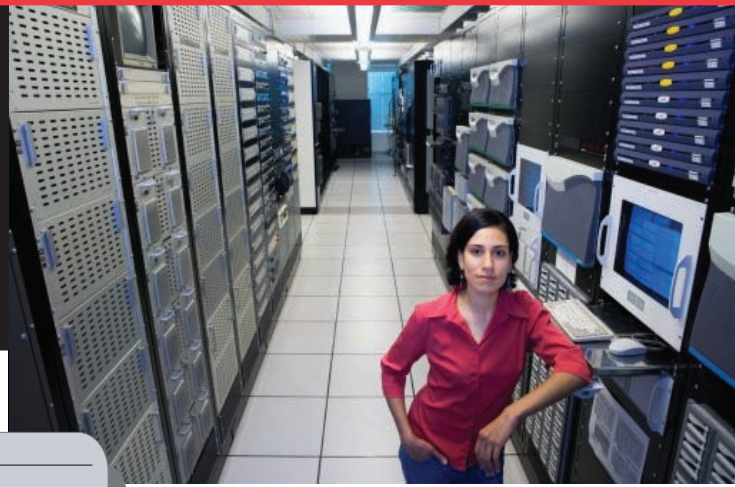


Dell®

# memory portfolio



# The DATARAM Advantage



## The DATARAM Product Line

### HP

#### Servers

ProLiant DL  
ProLiant ML  
ProLiant BL blades  
Integrity rx servers  
Integrity BL blades  
HP 9000 rp servers  
AlphaServers

#### Workstations

Personal Workstations  
RISC/Unix Workstations  
AlphaStations

### SUPERMICRO

Intel-based Server Boards

### AMD

Opteron-based Server Boards

### IBM

#### Servers

System p (pSeries)  
System x (xSeries)  
System i (iSeries)  
BladeCenter  
POWER processor-based servers  
Intel-processor based servers  
AMD processor-based servers

#### Workstations

IntelliStation Pro  
IntelliStation POWER

### INTEL

Server, Workstation  
and Desktop Boards

### DELL

#### Servers

PowerEdge

#### Workstations

Precision

### SUN

#### Servers

Sun Fire  
Enterprise  
Netra

#### Workstations

Sun Blade  
Ultra  
Java

Should you need technical assistance, help is just a phone call or email away, as our customer support personnel are available at no extra charge.

In addition, Dataram memory products installed in IBM servers and workstations with Intel or AMD processors are eligible for support by IBM in the USA.

### Lifetime Warranty

Dataram Corporation warrants that its memory products will be free from defects in materials and workmanship and conform to the manufacturer's specifications for the computer in which it is originally installed. This warranty is extended to the original end user for the lifetime of the system.

### Responsiveness

Whether it's first-to-market memory for the latest system, up-to-the-minute product information via an on-line memory selector, contact with a memory specialist or timely receipt of competitive quotations, Dataram responds fast. Flexible manufacturing enables quick delivery of products. Plus Dataram's worldwide network of distributors and resellers enable local presence and in-house service regardless of your geography or time zone.

### Dependability

No other memory company in the world can match our experience as an independent memory supplier. More than 60 of Fortune 100 companies have used Dataram memory. As a financially strong public company (Nasdaq: DRAM), Dataram is ready and capable of being your valued partner. **DATARAM is the Best Choice in Memory.**

### Savings

Top organizations throughout the world choose Dataram to save up to 50% off OEM memory prices. You can too! Compare us and save thousands on your next memory upgrade purchase. Or to save even more, buy new servers with the factory minimum memory configuration and fill all remaining slots with cost effective Dataram memory upon delivery of the new systems.

### Guaranteed Compatibility

Dataram is THE memory specialist with over 40 years experience designing, manufacturing and testing memory products. In addition, our memory modules are tested, validated and certified by Intel, AMD and CMTL. Beta sites enable additional testing in a wide range of applications and environments. Dataram has a ten-year relationship with

CMTL (Computer Memory Test Labs) where 2000+ system level tests have been performed on Intel and AMD based motherboards to ensure the highest level of memory compatibility available. For a greener earth, Dataram memory products are RoHS compliant and energy conserving low power modules are available. DATARAM memory modules are guaranteed to be 100% form, fit and function compatible for the system they are installed in.

### Superior Quality - Exceptional Support

You expect memory products to last a lifetime and we go to great lengths to meet or exceed your expectations! DATARAM memory products are manufactured in our own state-of-the-art ISO 9001 manufacturing facility in the USA, adhering to the world's highest standards for quality excellence. Every module is 100% tested prior to shipment.

# DATARAM

The Best Choice in Memory

800.DATARAM | usasales@dataram.com

Founded in 1967, Dataram is a worldwide leader in the design and manufacture of reliable, high capacity and innovative memory solutions. Dataram provides customized memory solutions for OEMs and memory upgrades for leading brands including HP, IBM, Sun Microsystems, Dell, Intel and AMD Opteron. For more information about Dataram's memory offerings, visit [www.dataram.com](http://www.dataram.com)

FAMILY	MODEL	MAX	SLOTS	CAPACITY	MFG #	DATARAM #	BOARDS	CAT
<b>DELL</b>								
<b>SERVERS</b>								
PowerEdge	T100, T105, R200	8GB	4	4GB	A2257209, A2018598, A2257210	DRL800U/4GB	2	C
Install DIMMs in matched pairs.								
PowerEdge	SC1430	8GB	4	4GB	A2027066	<b>DRL667FB/4GB</b>	2	C
Install DIMMs in matched pairs.								
PowerEdge	1750	8GB	4	1GB 2GB	---- ----	DRL2650/1024 DRL2650/2048	1 <sup>1)</sup> 1 <sup>1)</sup>	C C
1) DIMMs must be ordered and installed in pairs								
PowerEdge	1900	64GB	8	4GB 8GB 16GB <sup>1)</sup>	A2026995	<b>DRL667FB/4GB</b> <b>DRL667FB/8GB</b> <b>DRL667FBQ/16GB</b>	2 2 2	C C C
Install DIMMs in matched pairs.								
1) 8GB Quad-Rank DIMMs require BIOS V2.3.1 or later.								
PowerEdge	1800, SC1420, SC1425	12GB	6	1GB 2GB 2GB	---- ---- ----	DRL2850/1GB DRL2850D/2GB DRL2850S/2GB	1 <sup>1)</sup> 1 <sup>1)</sup> 1 <sup>1)</sup>	C C C
1) Except for a single DIMM in the 1st slot, odd numbered DIMMs are not supported--DIMMs must be installed in matched pairs. If using both single- and dual-rank DIMMs, the dual-rank DIMMs must be installed in slots 1 and 2. Dual-rank DIMMs are not supported in slots 5 and 6. No more than the equivalent of eight ranks are supported. The DRL2850/1GB and DRL2850S/2GB are single-rank. The DRL2850D/2GB is dual-rank.								
PowerEdge	2970	64GB	8	4GB 8GB 16GB	A2320305 A2408012	<b>DRL667R/4GB</b> <b>DRL667R/8GB</b> <b>DRL667RQ/16GB</b>	2 2 2	C C C
Install DIMMs in matched pairs; 4 DIMM slots per processor.								
8GB DIMMs require BIOS 1.2.2 or later. 8GB DIMMs and all memory installed with them are clocked down to 533MHz.								
PowerEdge	SC1435, T605	32GB	8	4GB 8GB	A2320303, A2320307 A2408002, A2408010	<b>DRL667R/4GB</b> <b>DRL667R/8GB</b>	2 2	C C
Install DIMMs in matched pairs; 4 DIMM slots per processor.								
PowerEdge	1850, 1855, 2800, 2850	16GB	6	1GB 2GB 2GB 4GB	---- ---- ---- ----	DRL2850/1GB DRL2850D/2GB DRL2850S/2GB DRL2850D/4GB	1 <sup>1)</sup> 1 <sup>1)</sup> 1 <sup>1)</sup> 1 <sup>1)</sup>	C C C C
1) Except for a single DIMM in the 1st slot, odd numbered DIMMs are not supported--DIMMs must be installed in matched pairs. If using both single- and dual-rank DIMMs, the dual-rank DIMMs must be installed in slots 1 and 2. Dual-rank DIMMs are not supported in slots 5 and 6. No more than the equivalent of eight ranks are supported. The DRL2850/1GB and DRL2850S/2GB are single-rank. The DRL2850D/2GB and DRL2850D/4GB are dual-rank.								
PowerEdge	T300, R300	24GB	6	4GB 8GB	A2320308, A2320309 A2257195, A2257196	<b>DRL667R/4GB</b> <b>DRL667R/8GB</b>	2 2	C C
Install DIMMs in matched pairs.								
PowerEdge	1955	64GB	8	4GB 8GB 16GB	A2026999 A2257180	<b>DRL667FB/4GB</b> <b>DRL667FB/8GB</b> <b>DRL667FB/16GB</b>	2 2 2	C C C
Install DIMMs in matched pairs. Valid configurations are two, four, or eight DIMMs. For optimum performance all four or eight DIMMs should be identical (capacity, speed, etc). Memory sparing and memory mirroring require eight and all must be identical. Memory sparing and memory mirroring cannot be implemented at the same time.								
PowerEdge	1950, 1950 III, 2950, 2950 III	64GB	8	4GB 8GB 16GB <sup>1)</sup>	A2026998, A2027005 A2257179, A2257233 A2257216, A2257246	<b>DRL667FB/4GB</b> <b>DRL667FB/8GB</b> <b>DRL667FBQ/16GB</b>	2 2 2	C C C
Install DIMMs in matched pairs. Valid configurations are two, four, or eight DIMMs. For optimum performance all four or eight DIMMs should be identical (capacity, speed, etc). Memory sparing and memory mirroring require eight and all must be identical. Memory sparing and memory mirroring cannot be implemented at the same time.								
1) 8GB Quad-Rank DIMMs require BIOS V2.3.1 or later.								

**FOR MORE INFORMATION, VISIT [WWW.DATARAM.COM](http://WWW.DATARAM.COM)  
OR CALL 1.800.DATARAM, +33 155 60 23 65 (EMEA), 609.799.0071**

FAMILY	MODEL	MAX	SLOTS	CAPACITY	MFG #	DATARAM #	BOARDS	CAT
PowerEdge	M600	64GB	8	4GB	A2027060	<b>DRL667FB/4GB</b>	2	C
				8GB	A2257185	<b>DRL667FB/8GB</b>	2	C
				16GB <sup>1)</sup>	A2257247	<b>DRL667FBQ/16GB</b>	2	C
Install DIMMs in matched pairs. <sup>1)</sup> 8GB Quad-Rank DIMMs require BIOS V1.2.2 or later.								
PowerEdge	M605	64GB	8	4GB	A2320306	<b>DRL667R/4GB</b>	2	C
				8GB	A2408014	<b>DRL667R/8GB</b>	2	C
				16GB		<b>DRL667R/16GB</b>	2	C
Install DIMMs in matched pairs; 4 DIMM slots per processor.								
PowerEdge	M805	128GB <sup>1)</sup>	16	4GB	A2320299	<b>DRL667R/4GB</b>	2	C
				8GB	A2408005	<b>DRL667R/8GB</b>	2	C
<sup>1)</sup> 128GB maximum with the release of 8GB DIMMs.								
PowerEdge	M905	192GB <sup>1)</sup>	24	4GB	A2320302	<b>DRL667R/4GB</b>	2	C
				8GB	A2408007	<b>DRL667R/8GB</b>	2	C
<sup>1)</sup> 192GB maximum with the release of 8GB DIMMs.								
PowerEdge	2650	12GB	6	1GB	----	DRL2650/1024	1 <sup>1)</sup>	C
				2GB	----	DRL2650/2048	1 <sup>1)</sup>	C
<sup>1)</sup> DIMMs must be ordered and installed in pairs								
PowerEdge	2900, 2900 III	96GB	12	4GB	A2027000	<b>DRL667FB/4GB</b>	2	C
				8GB	A2257181	<b>DRL667FB/8GB</b>	2	C
				16GB <sup>1)</sup>		<b>DRL667FBQ/16GB</b>	2	C
Install DIMMs in matched pairs. Valid configurations are two, four, eight or twelve DIMMs. For optimum performance all twelve DIMMs should be identical (capacity, speed, etc). Memory sparing and memory mirroring require eight or twelve DIMMs, and all must be identical. Memory sparing and memory mirroring cannot be implemented at the same time. <sup>1)</sup> 8GB Quad-Rank DIMMs require BIOS V2.3.1 or later.								
PowerEdge	6800, 6850	64GB	16 <sup>1)</sup>	1GB	----	DRL2850/1GB	1 <sup>2)</sup>	C
				2GB	----	DRL2850D/2GB	1 <sup>2)</sup>	C
				2GB	----	DRL2850S/2GB	1 <sup>2)</sup>	C
				4GB	----	DRL2850D/4GB	1 <sup>2)</sup>	C
<sup>1)</sup> Memory is installed on 1 to 4 riser cards. Each riser card has 4 DIMM slots arranged in 2 banks. <sup>2)</sup> DIMMs must be ordered and installed in matched pairs. If using both single and dual rank DIMMs, the dual rank DIMMs must be installed in the first bank. The DRL2850/1GB and DRL2850S/2GB are single-rank. The DRL2850D/2GB and DRL2850D/4GB are dual-rank.								
PowerEdge	R805	128GB	16	4GB	A2320300	<b>DRL667R/4GB</b>	2	C
				8GB	A2407998	<b>DRL667R/8GB</b>	2	C
				16GB		<b>DRL667R/16GB</b>	2	C
Install DIMMs in matched sets of four. 8 DIMM slots per processor. Quad-Rank DIMMs are not supported.								
PowerEdge	R900	256GB	32	4GB	A2027065	<b>DRL667FB/4GB</b>	2	C
				8GB	A2257184	<b>DRL667FB/8GB</b>	2	C
				16GB	A2257217	<b>DRL667FBQ/16GB</b>	2	C
PowerEdge	6950	128GB	16	4GB	A2320304	<b>DRL667R/4GB</b>	2	C
				8GB	A2257191	<b>DRL667R/8GB</b>	2	C
				16GB		<b>DRL667RQ/16GB</b>	2	C
Install DIMMs in matched pairs; 4 DIMM slots per processor. 8GB DIMMs require BIOS 1.2.12 or later. 8GB DIMMs and all memory installed with them are clocked down to 533MHz.								
PowerEdge	R905	256GB	32	4GB	A2320302	<b>DRL667R/4GB</b>	2	C
				8GB	A2408000	<b>DRL667R/8GB</b>	2	C
				16GB		<b>DRL667R/16GB</b>	2	C
Install DIMMs in matched pairs. 8 DIMM slots per processor.								

FAMILY	MODEL	MAX	SLOTS	CAPACITY	MFG #	DATARAM #	BOARDS	CAT
<b>WORKSTATIONS</b>								
Precision	T3400	8GB	4	4GB	A2257208	<b>DRL800U/4GB</b>	2	C
Install DIMMs in matched pairs.								
Precision	R5400	32GB	4	4GB	A2146192	<b>DRL667FB/4GB</b>	2	C
				8GB	A2146205	<b>DRL667FB/8GB</b>	2	C
				16GB	A2146205	<b>DRL667FBQ/16GB</b>	2	C
Install DIMMs in matched pairs.								
Precision	T5400	32GB	8	4GB	A2027072	<b>DRL667FB/4GB</b>	2	C
				8GB	A2257183	<b>DRL667FB/8GB</b>	2	C
Install DIMMs in matched pairs.								
Precision	T7400	128GB <sup>1)</sup>	16 <sup>1)</sup>	4GB	A2027074	<b>DRL667FB/4GB</b>	2	C
				8GB	A2257182	<b>DRL667FB/8GB</b>	2	C
				16GB	A2257245	<b>DRL667FB/16GB</b>	2	C
				4GB	A2257202	<b>DRL800FB2/4GB</b>	2	C
				8GB	A2257203	<b>DRL800FB2/8GB</b>	2	C
<sup>1)</sup> 64GB using 8 slots on main board; 128GB using 16 slots with optional riser cards (ordered at time of system purchase only). Install DIMMs in matched pairs.								
Precision	490	64GB	8	4GB	A2027068	<b>DRL667FB/4GB</b>	2	C
				8GB	A2257232	<b>DRL667FB/8GB</b>	2	C
				16GB		<b>DRL667FB/16GB</b>	2	C
Install DIMMs in matched pairs.								
Precision	690 (750W Model)	32GB	8	4GB	A2027070	<b>DRL667FB/4GB</b>	2	C
				8GB	A2257178	<b>DRL667FB/8GB</b>	2	C
Install DIMMs in matched pairs. For optimum performance install in groups of four identical DIMMs.								
	690 (1KW Model)	64GB	16 <sup>1)</sup>	4GB	A2027070	<b>DRL667FB/4GB</b>	2	C
				8GB	A2257178	<b>DRL667FB/8GB</b>	2	C
<sup>1)</sup> DIMMs are installed on four riser cards and DIMMs must be installed on these cards in sets of four identical DIMMs, one on each riser card.								

# How Does Dataram

*Bring Memory Options To Market The OEM Does Not Offer?*



## **Background in Innovation—**

Since 1967, and prior to the formation of Sun Microsystems, Compaq Computer, Silicon Graphics and Intel, Dataram has been designing and building memory systems, boards and modules, gaining experience and becoming memory specialists. Our quality standards in design, development, manufacture and test extend well beyond ISO 9001 requirements. Dataram engineers a complete line of memory upgrades compatible with systems and motherboards marketed by the major manufacturers, and is a worldwide memory solutions provider to leading Fortune 100 OEMs. To deliver the very best in compatibility and reliability, Dataram performs exhaustive tests and verifications in the workstations, servers and systems for which the memory is intended.

## **Developing First to Market Memory Upgrades—**

Many system manufacturers elect to limit the memory options for their systems and do not bring the largest possible capacities to market. There are many reasons an OEM might restrict the memory offerings of a given system—the marketing and positioning of a specific model within a product line, the pricing of a memory offering, an OEM's engineering restrictions/limitations or the non-adoption of the latest memory

design methodologies. Dataram monitors these decisions by system manufacturers and seeks to extend the product offerings with First to Market double density memory options. Customers are enabled with these products to obtain the maximum power and productivity from the specific system. However, prior to any product introduction by Dataram, extra steps are taken to ensure that memory will meet or exceed the system specifications for the lifetime of that system.

Our engineering staff designs and develops the memory according to strict guidelines evolved from industry standards and nearly four decades of memory design experience. Using state-of-the-art tools the memory is put through simulated tests that model extremes in signal timing, signal integrity, voltage and other factors.

Once the design has been proven, prototype models are built, examined, and tested by our engineers. In addition to our own in-house, specialized test equipment and regimens, the memory is verified in the target system under varied conditions. Every possible memory configuration is validated, including compatibility with the system vendor's memory. Signal quality and integrity is verified. Compatibility with the system's bios and firmware is verified, including the vendor's diagnostic tests and monitoring software.

Extreme environmental conditions such as temperature and humidity are introduced to the system while the memory is being exercised and stressed to ensure it will function within defined parameters. Components are monitored to ensure they operate well within the vendor's specifications for temperature and voltage. Airflow and temperatures at other locations within the system are monitored to ensure operation is within known specifications.

Pre-production modules are built to prove the quality process in manufacturing and the memory is put through extensive burn-in tests inside the target system.

Even after all this, Dataram often opts to perform additional tests at customer sites to further validate the memory under real-life customer applications and environments.

Throughout this entire process a number of quality reviews take place including Concept, Pre- and Post-Design, Summary and Release. Various departments participate in these meetings such as Engineering, Quality, Manufacturing, Production Test, Production Control, Purchasing, Customer Support and Product Marketing. The entire process is tightly controlled by our ISO 9001 quality procedures. These advanced products, deemed impossible by the system manufacturer, are possible and a reality for Dataram.

# DATARAM

*The Best Choice in Memory*

You, the customer, enjoy the added power, performance and productivity your servers or workstations can deliver. In addition, all memory upgrade products are back by Dataram's Lifetime Warranty for added assurance.

***Why buy high capacity memory options from Dataram?***

Dataram is committed to providing customers with the highest quality memory products and at the largest

capacities possible. By upgrading workstations and servers to larger memory configurations, performance and productivity are greatly enhanced for applications such as database, EDA, CAE/PLM, MCAD, CFD, and complex simulations. As memory specialists, Dataram brings First to Market and innovative products to market while delivering valuable cost savings to our customers.

***First to Market, High-Capacity Memory Upgrades***

Validated in target systems

Verified to operate within power and thermal specifications

Compatible with system's hardware, firmware and software

Performance and satisfaction guaranteed

***First to Market Products for Sun Include:***

DRSV20Z/8GB – 8GB Sun Fire V20z/V40z

DRS2100Z/8GB – 8GB Sun Java W1100z/W2100z

DRS240/4096 – 4GB Sun Fire V210/V240/V250, Sun Blade 1500/2500

DRS280B/8192 – 8GB Sun Fire 280R

DRS880/8192 – 8GB Sun Fire V480/V490/V880/V890

DRS4800/8192 – 8GB Sun Fire 3800-6800, E2900/4900/6900

***First to Market Products for IBM Include:***

DRI325/4096 – 4GB eServer 325/326, IntelliStation A Pro

DRI6224/4GB – 4GB IntelliStation A Pro

***First to Market Products for HP Include:***

DRH145/8GB – 8GB ProLiant DL145, DL585

DRHZX6000 – 8GB zx6000 Workstation

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**Customer Support**

Customer Support representatives are available for Asia, Europe and the USA to help with detailed technical information, installation questions and troubleshooting.

For the latest information, please consult Dataram's Memory Configurator and Product Support FAQ at <http://www.dataram.com>. Dataram memory products are covered by a lifetime warranty. Complete warranty information is also available on Dataram's website.

Prior to returning products to Dataram, please contact Customer Support via email or telephone to obtain an RMA (Return Material Authorization) tracking number

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**About Dataram**

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