HP ProLiant DL380 G6 Server - Configuring Memory

DDR3 memory population guidelines

NOTE: Memory configurations listed do not apply to 'Factory Integrated Models'.

Click here to use the Online DDR3 Memory Configuration Tool, for detailed memory configuration rules and guidelines .

Some DIMM installation guidelines are summarized below:

- For servers with eighteen (18) memory slots:
  - There are three (3) channels per processor; six (6) channels per server.
  - There are three (3) DIMM slots for each memory channel; eighteen (18) total slots.
  - Memory channel 1 consists of the three (3) DIMMs that are closest to the processor.
  - Memory channel 3 consists of the three (3) DIMMs that are furthest from the processor.
- DIMM slots that are white should be populated first.
- Do not mix Unbuffered memory (UDIMMs) with Registered memory (RDIMMs).
- Do not install DIMMs if the corresponding processor is not installed.
- If only one processor is installed in a 2CPU system, only half of the DIMM slots are available.
- To maximize performance, balance the total memory capacity between all installed processors.
- It is not required, but it is recommended to load the channels similarly if possible.
- You can only have up to eight (8) ranks installed per channel.
- You can only install two quad-rank DIMMs per channel.
- You can only install two UDIMMs per channel; if available, the third slot in the channel must remain empty.
- Populate DIMMs from heaviest load (quad-rank) to lightest load (single-rank) within a channel.
- Heaviest load (DIMM with most ranks) within a channel goes furthest from the chipset.
- For memory mirroring mode, channel 3 must be unpopulated. Channels 1 and 2 are populated identically.
- For lock-step mode, channel 3 must be unpopulated. DIMMs in channels 1 and 2 will be installed in pairs. The paired slots will be 1,4; 2,5; 3;6 on a 3DPC system or 1,4; 2,5; on a 2DPC system.
- No mixing DIMM voltage; all DIMMs must be the same voltage.

DIMM Type	Registered Dimms (RDIMMs)	Unbuffered with ECC DIMMs (UDIMMs)

DIMM Type	Registered Dimms (RDIMMs)						Unbuffered with ECC DIMMs (UDIMMs)	
DIMM Rank	**Dual Rank** (2R)				**Quad Rank** (4R)		**Single Rank** (1R)	**Dual Rank** (2R)
DIMM Capacity	2GB	4GB	8GB	8GB	4 GB	16 GB	1 GB	2GB
DIMM Native Speed (MHz)	1333	1333	1067	1333	1067	1067	1333	1333
SLOTS THAT CAN BE POPULATED								
18 slot servers	18	18	18	18	12	12	12	12
MAXIMUM CAPACITY (GB)								
18 slot servers	36	72	144	144	48	192	12	24
POPULATED DIMM SPEED (MHz)								
1 DIMM Per Channel	1333	1333	1067	1333	1067	1067	1333	1333
2 DIMM Per Channel	1333*	1333*	1067	1333*	800	800	1333	1333
3 DIMM Per Channel	800	800	800	800	*	n/a	n/a	n/a
NOTE: * - supported with ROM update via ROM Based Setup Utility (RBSU). UDIMM support is only on 12-slot servers.								

NOTE:

- Mixing DIMM speeds is allowed, but the system processor speed rules always override the DIMM capabilities.
- If you do mix DIMM speeds, the memory bus will default to the minimum clock rate of all DIMMs in the system - even if the slower DIMM is on the other processor.
- If you install 1x 1066 MHz DIMM in channel 1 and 1x 1333 MHz DIMM in channel 2, you still run at 1066 MHz.
- If you install 1x 1066 MHz DIMM in channel 1 and 5x 1333 MHz DIMMs with 1 DIMM Per Channel (DPC) in each of the other channels, you run at 1066 MHz.
- If you install 3DPC in one channel (if applicable) and 1DPC in all other channels, you run at 800 MHz.
- 95 Watt CPU's are required for 1333M Hz DIMM speeds. All other CPU's are capable of up to 1067 MHz.

- References to the above MHz speeds are for the various speeds of DDR3 DIMMs; 1333 refers to DDR3-1333, etc.

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DIMM slot and configuration diagrams

Basic memory slot & population diagram

Population order; start with 'A' first, 'B' second, 'C' third, etc.

18 DIMM SLOTS (9 per CPU node)					
	CPU1		CPU2		
	Slot #	**Population order**	**Slot #**	**Population order**	
Chnl 1	1	G	1	G	Chnl 1
	2	D	2	D	
	3	A	3	A	
Chnl 2	4	H	4	H	Chnl 2
	5	E	5	E	
	6	B	6	B	
Chnl 3	7	I	7	I	Chnl 3
	8	F	8	F	
	9	C	9	C	

Standard memory configuration (1 CPU model)

6GB, consisting of three (3) 2GB dual-rank PC3-10600 RDIMMs.

	CPU1		CPU2		
	Slot #	**Population order**	**Slot #**	**Population order**	

	CPU1		CPU2		
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; empty	2	D; empty	
	3	A; 2GB DIMM	3	A; empty	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; empty	5	E; empty	
	6	B; 2GB DIMM	6	B; empty	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; empty	8	F; empty	
	9	C; 2GB DIMM	9	C; empty	

Standard memory plus optional memory (1 CPU model)

54GB, consisting of three (3) 2GB RDIMMs plus six (6) 8GB RDIMMs

- 3x 2GB dual-rank PC3-10600 RDIMMs
- 6x 8GB dual-rank PC3-8500 RDIMMs

	CPU1		CPU2		
	Slot #	**Population order**	**Slot #**	**Population order**	
Chnl 1	1	G; 8GB DIMM	1	G; empty	Chnl 1
	2	D; 8GB DIMM	2	D; empty	
	3	A; 2GB DIMM	3	A; empty	
Chnl 2	4	H; 8GB DIMM	4	H; empty	Chnl 2
	5	E; 8GB DIMM	5	E; empty	
	6	B; 2GB DIMM	6	B; empty	

	CPU1		CPU2		
Chnl 3	7	I; 8GB DIMM	7	I; empty	Chnl 3
	8	F; 8GB DIMM	8	F; empty	
	9	C; 2GB DIMM	9	C; empty	

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Standard memory replaced with optional memory (1 CPU model)

RDIMM maximum configuration (1 CPU model)

96GB, consisting of six (6) 16GB quad-rank PC3-8500 RDIMMs

NOTE: When using Quad-rank RDIMM memory modules, only two RDIMMs can be installed per memory channel. Total memory slots available will be (6) for one processor models and (12) for two processor models.

	CPU1		CPU2		
	Slot #	**Population order**	**Slot #**	**Population order**	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; 16GB DIMM	2	D; empty	
	3	A; 16GB DIMM	3	A; empty	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; 16GB DIMM	5	E; empty	
	6	B; 16GB DIMM	6	B; empty	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; 16GB DIMM	8	F; empty	
	9	C; 16GB DIMM	9	C; empty	

UDIMM maximum configuration (1 CPU model)

12GB, consisting of six (6) 2GB dual-rank PC3-10600 UDIMMs

NOTE: When using UDIMM memory modules, only two UDIMMs can be installed per memory channel. Total memory slots available will be (6) for one processor models and (12) for two processor models.

	CPU1		CPU2		
	Slot #	**Population order**	**Slot #**	**Population order**	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; 2GB DIMM	2	D; empty	
	3	A; 2GB DIMM	3	A; empty	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; 2GB DIMM	5	E; empty	
	6	B; 2GB DIMM	6	B; empty	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; 2GB DIMM	8	F; empty	
	9	C; 2GB DIMM	9	C; empty	

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Standard memory replaced with optional memory (2 CPU model)

RDIMM maximum configuration (Quad-rank)

192GB, consisting of twelve (12) 16GB quad-rank PC3-8500 RDIMMs

NOTE: When using Quad-rank RDIMM memory modules, only two RDIMMs can be installed per memory channel. Total memory slots available will be (6) for one processor models and (12) for two processor models.

	CPU1		CPU2		
	Slot #	**Population order**	**Slot #**	**Population order**	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; 16GB DIMM	2	D; 16GB DIMM	

	CPU1		CPU2		
	3	A; 16GB DIMM	3	A; 16GB DIMM	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; 16GB DIMM	5	E; 16GB	
	6	B; 16GB DIMM	6	B; 16GB	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; 16GB DIMM	8	F; 16GB DIMM	
	9	C; 16GB DIMM	9	C; 16GB DIMM	

RDIMM maximum configuration (Dual-rank)

144GB, consisting of eighteen (18) 8GB dual-rank PC3-8500R RDIMMs

NOTE: When using Dual-rank RDIMM memory modules, three RDIMMs can be installed per memory channel. Total memory slots available will be (9) for one processor models and (18) for two processor models.

	CPU1		CPU2		
	Slot #	**Population order**	**Slot #**	**Population order**	
Chnl 1	1	G; 8GB DIMM	1	G; 8GB DIMM	Chnl 1
	2	D; 8GB DIMM	2	D; 8GB DIMM	
	3	A; 8GB DIMM	3	A; 8GB DIMM	
Chnl 2	4	H; 8GB DIMM	4	H; 8GB DIMM	Chnl 2
	5	E; 8GB DIMM	5	E; 8GB DIMM	
	6	B; 8GB DIMM	6	B; 8GB DIMM	
Chnl 3	7	I; 8GB DIMM	7	I; 8GB DIMM	Chnl 3
	8	F; 8GB DIMM	8	F; 8GB DIMM	

	CPU1		CPU2		
	9	C; 8GB DIMM	9	C; 8GB DIMM	

UDIMM maximum configuration

24GB, consisting of twelve (12) 2GB dual-rank PC3-10600 UDIMMs

NOTE: When using Single-rank or Dual-rank UDIMM memory modules, only two UDIMMs can be installed per memory channel. Total memory slots available will be (6) for one processor models and (12) for two processor models.

	CPU1		CPU2		
	Slot #	**Population order**	**Slot #**	**Population order**	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; 2GB DIMM	2	D; 2GB DIMM	
	3	A; 2GB DIMM	3	A; 2GB DIMM	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; 2GB DIMM	5	E; 2GB DIMM	
	6	B; 2GB DIMM	6	B; 2GB DIMM	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; 2GB DIMM	8	F; 2GB DIMM	
	9	C; 2GB DIMM	9	C; 2GB DIMM	

NOTE: Capacity references are rounded to the common Gigabyte values.

- 1GB = 1024MB
- 2GB = 2048MB
- 4GB = 4096MB
- 8GB = 8192MB

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Memory options

Following are memory options available from HP:

Memory	
Description	**Option Part #**
Registered DIMMs (RDIMMs)	
HP 2GB 2Rx8 PC3-10600R-9 Kit	500656-B21
HP 4GB 2Rx4 PC3-10600R-9 Kit	500658-B21
HP 4GB 4Rx8 PC3-8500R-7 LP Kit	500660-B21
HP 8GB 2Rx4 PC3-8500R-7 Kit	516423-B21
Unbuffered with ECC DIMMs (UDIMMs)	
HP 1GB 1Rx8 PC3-10600E-9 Kit	500668-B21
HP 2GB 2Rx8 PC3-10600E-9 Kit	500670-B21
NOTE: All DDR3 memory option kits consist of one DIMM per kit. Click Here to use the Online DDR3 Memory Configuration Tool, for detailed memory configuration rules and guidelines. **NOTE:** Kits described as LP include Low Power DIMMs. Click Here for more information on ProLiant Energy Efficient Features.	