

FAQ / Application Note

Subject: Memory Mirroring

FAQ Document No: S22006

Date: 2022/03/01

Model Name: HPM-621DE

Rev. A1.

Category: General H/W S/W Others, Memory

Purpose: Instruction how test and confirm memory mirroring function workable.

Memory-mirroring mode provides full memory redundancy while reducing the total system memory capacity in half. Memory channels are grouped in pairs with each channel receiving the same data. If a failure occurs, the memory controller switches from the DIMMs on the primary channel to the DIMMs on the backup channel. The DIMM installation order for memory mirroring varies based on the number of processors and DIMMs installed in the server.

- **M/B:** HPM-621DE
- **BIOS version:** HPM6210H.bin
- **Memory module:** 2 xApacer 8GB ECC REG-DIMM DDR4 3200
- **Memory Mirror:** Install memory method:
CPU 0: DIMM1+DIMM2 slot or DIMM3+DIMM4 slot or DIMM5+DIMM6 slot

BIOS: HPM6210H.bin

1. BIOS message "(HPM6210H) HPM-621DE BIOS Version:0.0H Date:11/03/2021"
2. Unhide item "Memory RAS Configuration" for Mirror mode can be used

```

Aptio Setup Utility - Copyright (C) 2021 American Megatrends
Main Advanced Server Mgmt Security Boot Save & Exit

BIOS Information
BIOS Vendor                American Megatrends
Core Version                5.14
Compliance                 UEFI 2.7; PI 1.6
Project Version            0ACLA 0.45 x64
Build Date and Time        11/03/2021 11:00:40
Access Level               Administrator
BIOS Name                  HPM6210H
BIOS Version               0.0H
    
```

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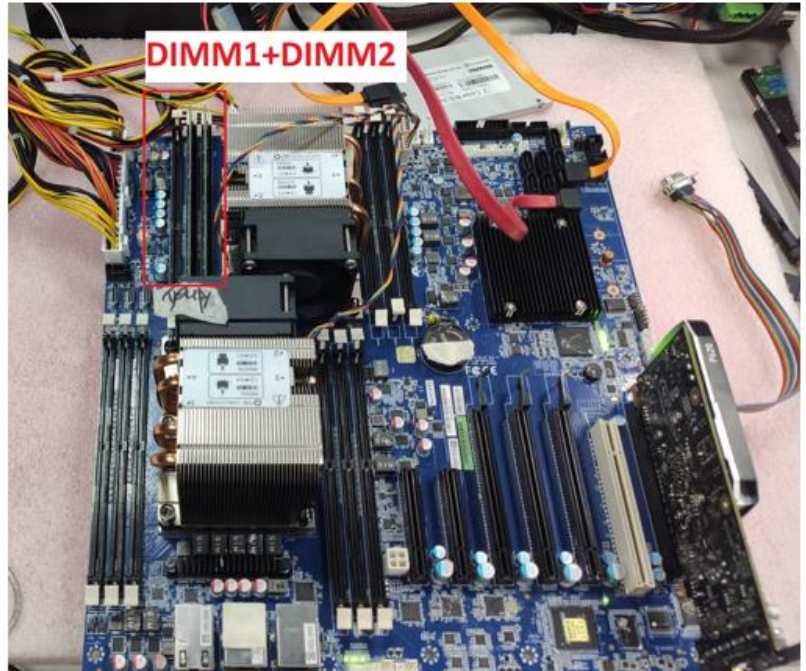
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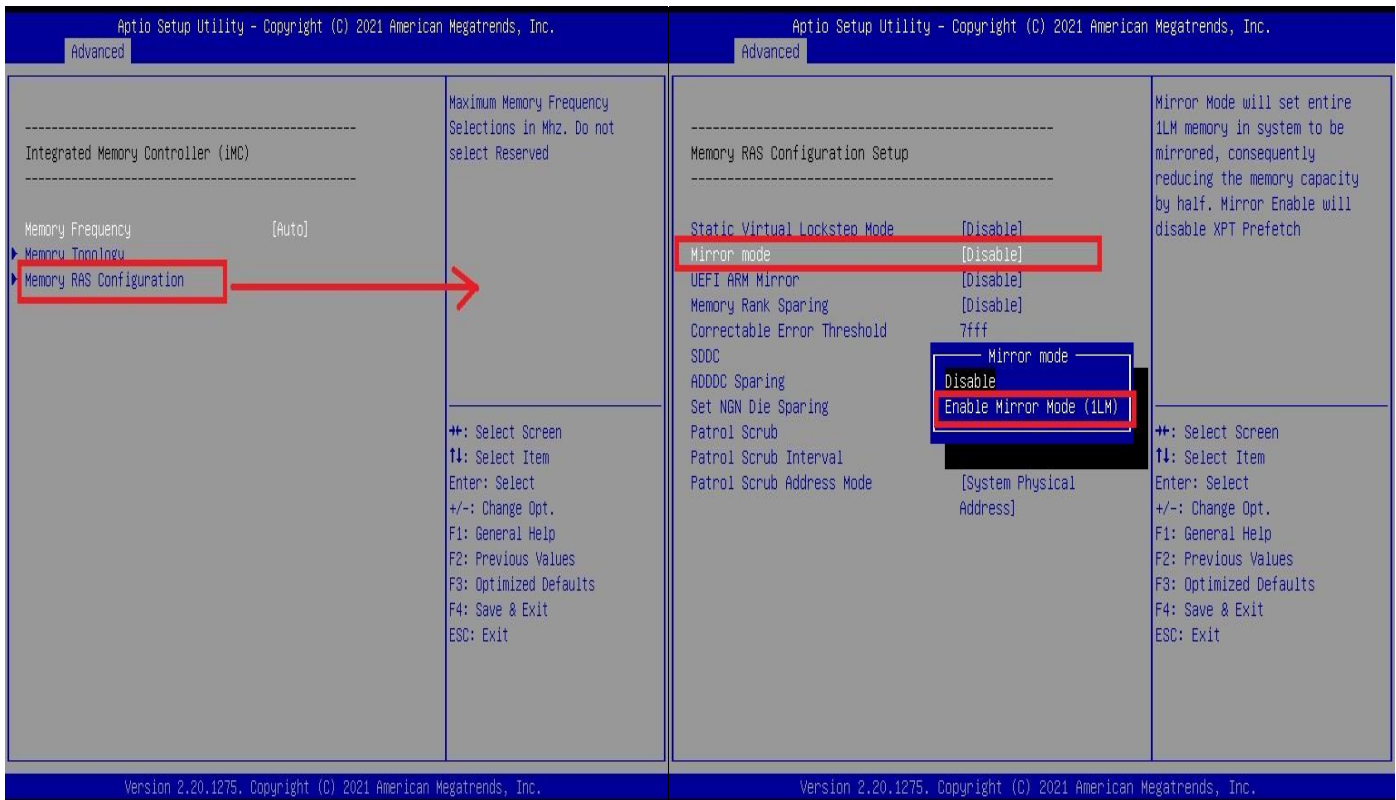


- ✓ 2 x Apacer 8GB ECC REG-DIMM DDR4 3200
- ✓ DIMM1+DIMM2



BIOS setting:

BIOS path: Advanced → Memory Configuration → Memory RAS Configuration → Mirror Mode: Enable Mirror Mode(1LM)



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It can detected install memory hardware information:

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Advanced

Dimm1: DIMM is Present. DIMM Status:Enabled  DIMM Details:
2400MT/s Apacer SRx8 8GB RDIMM
Dimm2: DIMM is Present. DIMM Status:Enabled  DIMM Details:
2400MT/s Apacer SRx8 8GB RDIMM
Empty
Empty
Empty
Empty
Empty
Empty
Empty
Empty
Empty
    
```

```

Aptio Setup Utility - Copyright (C) 2021 American Megatrends, Inc.
Main

Intel RC Version

Platform Information
Platform              TypeNeonCityEPRP
Processor             50657 - CLX V1
PCH                   LBG QS/PRQ - 1G - S1
RC Revision           0580.D04
BIOS ACM              1.7.1
SINIT ACM             1.7.2

Memory Information
Total Memory          8192 MB
Usable Memory         8192 MB

++: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
ESC: Exit

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```

It can look total memory size is 8GB x2 =16GB (7.66GB usable) in Windows 10 OS.

檢視電腦的基本資訊

Windows 版本

Windows 10 企業版 LTSC

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系統

處理器: Intel(R) Xeon(R) Silver 4210 CPU @ 2.20GHz 2.20 GHz (2 個處理器)
 已安裝記憶體 (RAM) **16.0 GB (7.66 GB 可用)**
 系統類型: 64 位元作業系統, x64 型處理器
 手寫筆與觸控: 此顯示器不提供手寫筆或觸控式輸入功能。

電腦名稱、網域及工作群組設定

電腦名稱: DESKTOP-LG455P9
 完整電腦名稱: DESKTOP-LG455P9
 電腦描述:
 工作群組: WORKGROUP



And resource monitor shown that memory have been hardware reserve 8538MB(around 8GB) .

The screenshot shows the Windows Resource Monitor window with the 'Memory' tab selected. The 'Physical Memory' section shows a bar chart where the 'Hardware Reserved' portion is highlighted with a red box and labeled as 8538 MB. Below the bar chart, a legend indicates: 硬體保留 (Hardware Reserved) 8538 MB, 使用中 (In Use) 2217 MB, 已修改 (Modified) 95 MB, 待命 (Standby) 772 MB, and 可用 (Available) 4762 MB. A summary table on the right shows: 可用的 (Available) 5534 MB, 已快取 (Cached) 867 MB, 總計 (Total) 7846 MB, and 已安裝 (Installed) 16384 MB. On the right side of the window, a 'View' pane shows a graph for 'Used Physical Memory' at 100%, '60 seconds Confirm Load' at 100%, and 'Hardware Errors/second' at 0%.

HPM-621DE Memory Mirroring Channel:

CPU#	Channel#	DIMM slot #
CPU0	CH0	1.2
	CH1	3.4
	CH2	5.6
CPU1	CH0	7.8
	CH1	9. 10
	CH2	11.12

1. Enable Memory mirroring, it must install one pair memory DIMM at server board.
Example: one at DIMM1 slot, mirror at DIMM2 slot.
2. It must install same DIMM module/memory type/Model/size and frequency per each channel.

-End