

Product Advisory

Issue Date: September 15, 2022

Change Type:

Whitney+ power reduction configuration support in 2.25

Summary:

Broadcom is committed to delivering the lowest power NICs on the market. NIC FW release 2.25 implements an optional feature to lower the maximum operating power by approximately 3W on applicable Whitney+ 10G SFP+ and 10GBASE-T adapters. This power reduction is achieved by lowering the ASIC core clock and reducing the number of PCIe Gen3 lanes from 8 to 4. This feature is not enabled by default. Whitney+ designs updating to FW release 2.25 may be incompatible with certain motherboards after enabling this power reduction feature.

Parts Affected:

Table 1 - Impacted Devices with Lane Reversal
BCM957412M4122C
BCM957412M4123C
BCM957416M4163C
BCM957412M4120C
BCM957416M4160C
BCM957416M4160DCT

Table 2 - Impacted Software Releases
2.25
<u>M125P ONLY:</u> <ul style="list-style-type: none">• 2.19 to 2.23 - Always enabled• 2.24+ - Enabled via NVM Config

Failure Scenario:

Above listed Broadcom NICs implement PCIe lane reversal (table 1) on the PCB, which may be incompatible with certain motherboards after enabling the power reduction feature. If the feature is enabled on an incompatible motherboard, **the card will not be detected by the host over the PCIe bus.**

Step1: A board listed in table 1 is updated or manufactured with a firmware release in table 2

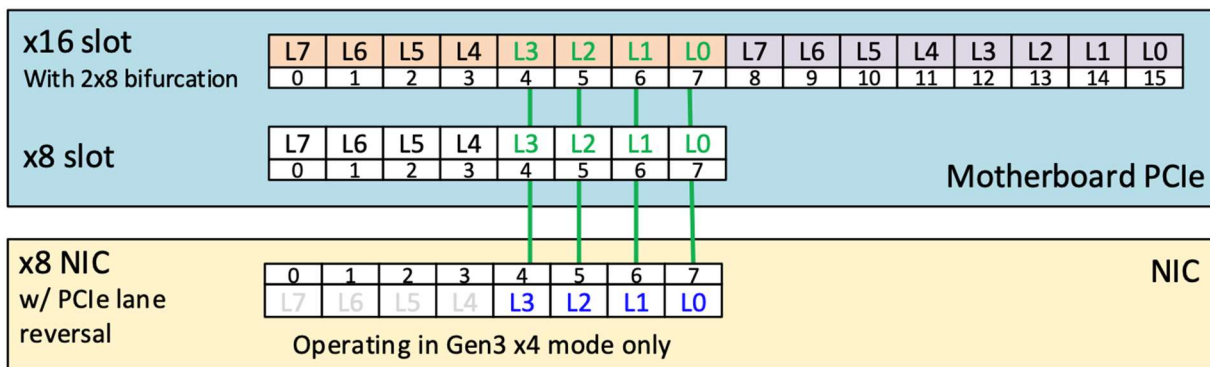
Step2: Modify the corresponding NVM config item to enable the power reduction feature

Step3: An AC power cycle is required for the change to take effect

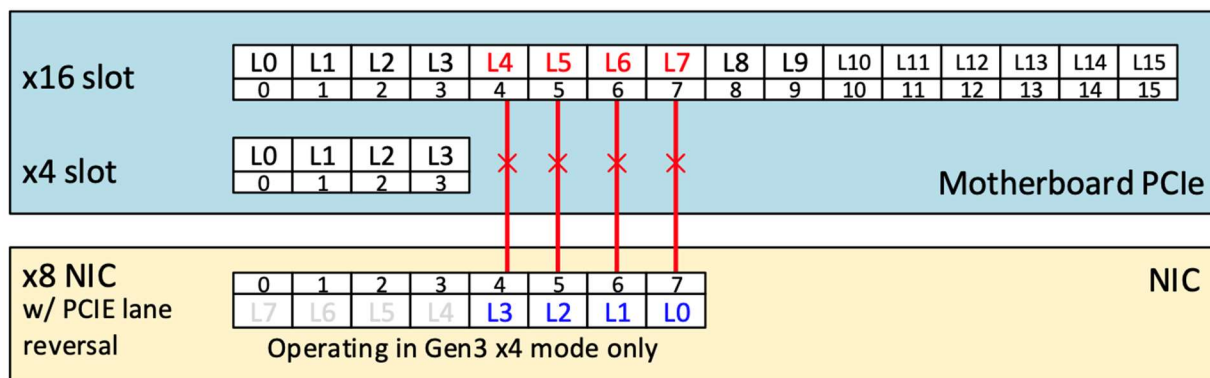
Step4: After the AC power cycle, the power reduction feature is enabled

The above sequence of events will result in the card not getting detected on incompatible motherboards. To recover the card, the customer will need to move the NIC card to a compatible system, disable the feature, and then move the card back to the original motherboard.

Example of **Compatible** Motherboard Configuration



Example of **Incompatible** Motherboard Configuration



Recommendation:

- Users must consult the FAE Advisory “Wh+ 10G Power Reduction Feature in 2.25 FW Release” to ensure system compatibility before enabling this feature.
- Customers should test the power reduction feature first before mass deploying the feature in the field for the NIC cards listed above.
- Follow the Firmware upgrade & downgrade considerations provided in the reference document.

The Whitney+ adapters in table 3 do not implement lane reversal and will benefit from the power reduction feature without the issues described above.

Table 3 - Lane Reversal not supported		
BCM957412A4120AC	BCM957416A4160DC	BCM957416M4162C
BCM957412N4120CI	BCM957416A4160DLPC	BCM957416N4160HC
BCM957412N4120C	BCM957416N4160DC	BCM957416A4160LC
BCM957416A4160C	BCM957412A4121HC	BCM957416A4160LFRU
BCM957416N4160C	BCM957412N4120HC	BCM957416N4160LC
BCM957416N4160CI	BCM957414A4143HC	BCM957416N4160LCFRU
BCM957412A4120DC	BCM957414M4146C	BCM957416N4161LC
BCM957412A4120DLPC	BCM957416A4160HC	BCM957416N4161LCFRU
BCM957412N4120DC	BCM957416A4162HC	



Effect of Change on Fit, Form, Function, Quality, or Reliability:

The specification will remain the same. No change to adapter form, fit, function, reliability and quality.

Effective Date of Change:

- Software release 2.25 will be available on February 28, 2022
- In addition, starting on February 28, 2022, Broadcom may, at its discretion, update the manufacturing software of its Ethernet adapters with release 2.25 or later

For M125p BCM957412M4122C

- Release 2.19 was made available on Sept 30, 2021
- Release 2.24 will be available on Nov 30, 2022
- M125p boards are currently manufactured with release 216.0 LGA5

Please contact your Broadcom field sales engineer or Contact Center for any questions or support requirements. Please return any response as soon as possible, but not to exceed 30 days.