Product :	novascale bullion – Intel Ethernet PCI Express Adapters I350T2/T4 and X520	Issued : **March 26, 2014**
Subject :	**Fixing the problem of "loss of connectivity on Network adapters"**	
Abstract :	This note explains how to disable the "ASPM" parameter on novascale bullion servers, to fix the loss of traffic on PCI Express port for Network adapters.	

This note explains how to disable the "ASPM" parameter on novascale bullion servers, to fix the loss of traffic on PCI Express port for Network adapters.

CAUTION :

In some case, the traffic on PCIe Adapters is falling down, or is flapping.

This incident is linked to the ASPM (Active Power State Management) function which can hang up the traffic when it is enabled.

So, the workaround consists to disable the "ASPM" parameter, in bios setup.

Important : The ASPM parameter must be disabled for all PCI-Express ports and for both IOH in each module of the bullion system.

This issue was found on Network PCIe adapters :
- Intel Ethernet I350 T2 / T4
- Intel Ethernet X520 SR2/DA2

On bullion servers using VMware ESX Hypervisor or Red Hat Linux Operating System.

In the Technical State :
(1) For bullion Extended Memory (64DIMM) :
- TS059.03 (BIOSX02.14.13.051/151)
- TS060.02 (BIOSX02.14.15.056/156)
- TS061.02 (BIOSX02.14.16.060/160)

(2) For bullion Standard Memory (32DIMM) :
- TS039.04 (BIOSX02.14.13.051/151)
- TS039.05 (BIOSX02.14.13.999)
- TS040.02 (BIOSX02.14.16.060/160)

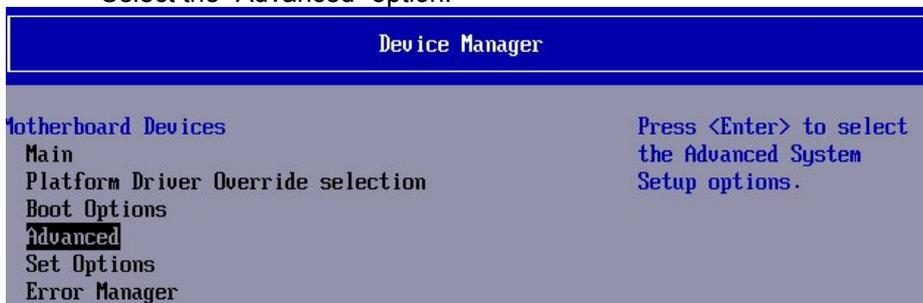# Procedure to disable the "ASPM" parameter

- Reboot the server

- Press the [space] key when prompted
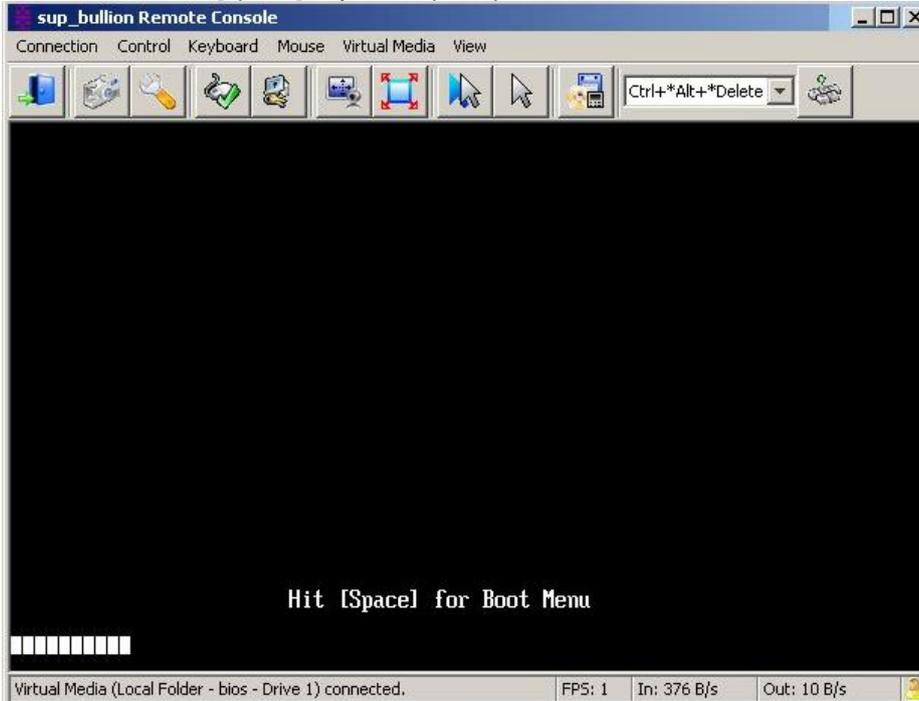
- From the Boot Menu , select "Device Manager" to enter in the Bios settings pages.

- Select the "Advanced" option.

- Select "Boxboro Configuration"

```
Processor Configuration
CSI General Configuration
Memory Configuration
Memory RAS Configuration
Boxboro Configuration
ICH9/ICH10 Configuration
ACPI Table/Features Control
IPMI BMC Configuration
```

-        Enter in the first IOH configuration entry

```
B0 IOH PCI Settings        <Enable>
Module 0 IOH0 Configuration
Module 0 IOH1 Configuration
Module 1 IOH0 Configuration
Module 1 IOH1 Configuration
Module 2 IOH0 Configuration
Module 2 IOH1 Configuration
Module 3 IOH0 Configuration
General Configuration
Intel® VT for Directed I/O (VT-d)
```

-        Go to the line "PCI-E ASPM Support"

```
PCI Express Port 0                              This option enables /
????????????????????????????????????????????   disables the ASPM
                                                support (L0s only/L0s &
PCI-E Port                <Auto>                L1) for the downstream
PCI-E Port Clocking       <Common>             devices.
PCI-E Port Max. Payload   <128B>
Request
PCI-E ASPM Support        <L0s & L1 Both>
SERR                      <Enable>
PERR                      <Enable>
MSI                       <Disable>
PCI-E Extended Sync       <Disable>
PCI-E Inband Presence     <Enable>
Detect
Compliance Mode           <Disable>
                                   ↓
 F1=Scroll Help          F9=Reset to Defaults   F10=Save
 ↑↓=Move Highlight       <Enter>=Select Entry   Esc=Exit without Save
```

-        Press 'Enter' to change the parameter value to "Disable"

```
PCI Express Port 0                              This option enables /
????????????????????????????????????????????   disables the ASPM
                                                support (L0s only/L0s &
PCI-E Port                <Auto>                L1) for the downstream
PCI-E Port Clocking       <Common>             devices.
PCI-E Port Max. Payload   <12
Request                     Disable
PCI-E ASPM Support        <L0  L0s Only
SERR                      <En  L0s & L1 Both
PERR                      <En
MSI                       <Disable>
```
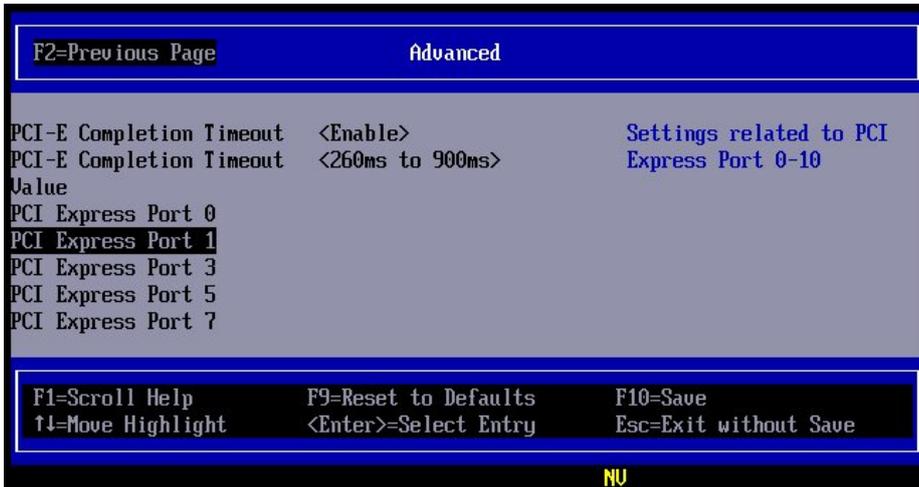
-        Press 'Enter' again (Note the 'NV' indicator ,in yellow, at the bottom of the page
 to remember that a parameter change has not been yet saved.)

-        IMPORTANT: return to the previous page by 'F2' function key.

```
F2=Previous Page                    Advanced

PCI-E Completion Timeout   <Enable>              Settings related to PCI
PCI-E Completion Timeout   <260ms to 900ms>      Express Port 0-10
Value
PCI Express Port 0
PCI Express Port 1
PCI Express Port 3
PCI Express Port 5
PCI Express Port 7


  F1=Scroll Help          F9=Reset to Defaults    F10=Save
  ↑↓=Move Highlight       <Enter>=Select Entry     Esc=Exit without Save

                                  NV
```

- Repeat the setting of "PCI-E ASPM Support" to '"Disable' for each PCI Express Port <number> of this IOH.

- NOTE : for Master module 0 , ports are 0,1,3,5,7 and for Slave modules , an additional port 9 appears.
Disable also the ASPM parameter for the port 9 on both IOH.

- Then repeat the setting of "PCI-E ASPM Support" to 'Disable' for each PCI Express Port <number> **of all IOH of all modules existing in the configuration.**

- After the last PCI-E port has been changed , press 'F10' to save all changes (the 'NV' indicator is cleared).

- Press "Esc" twice to exit the bios setting menus , then reboot the server with the "Hard reset" button from the SHC.

END OF DOCUMENT