



Intel® Server Board S7200AP Family BIOS

Setup Specification

For the Intel® Server Board S7200AP family supporting bootable
Intel® Xeon Phi™ processors.

Rev 1.12

Intel Confidential

July 2017

<Blank page>

Document Revision History

Date	Revision	Changes
November 2014	0.90	Revision 0.90 released for distribution. Per PCSD Document Readiness Guidelines –Overall Setup
December 2014	0.93	Removed 'Save Changes and Exit this sub-menu' and 'Discard Changes and Exit this sub-menu' in Boot Maintenance Manager Screen. Removed 'Drive Health' in UEFI Option ROM Control Screen, as Jenson do related refactoring. Changed help text of Discard Changes and Exit to 'Exit BIOS Setup Utility without saving changes.' Removed previous extra string 'The [Esc] key can also be used' in help text.
February 2015	0.97	Formatted photograph to follow current Grantley setup. Changed the title of "1.1 BIOS Information Screen" to front page; As the top menu of "Setup Menu" has been discard, and to avoid confusion with Main Page, changed to "Front page" from "Main screen". For "1.3 Main Screen (Tab)", added "System Weekday" in Figure 8 and corrected comments for System Date, added description for System Weekday and changed the default value from Saturday to Tuesday. For "1.4.1 Processor Configuration", deleted the information for CPU2 in Figure 10. For "1.4.5 Mass Storage Controller Configuration", to follow SRD 1.0, deleted the information for "Intel(R) Storage Module" in Figure 18. For "1.4.6.1 NIC Configuration", to follow SRD 1.0, deleted the information for "PXE 10GbE Option Rom" in Figure 21; change "FCoE 10GbE option ROM" to be "FCoE 1GbE option ROM"; and delete the description for iSCSI 10GbE support. For "1.6 Server Management Screen (Tab)", changed the minimum of "Power Restore Delay Value" from 25s to be 55s, as current BMC initialization needs about 50s on Grantley.
August 2015	0.98	Added option "Current TPM Device" in Figure 31. Changed "F10=Save Changes" to be "F10=Save Changes and Exit". Updated TPM menu. Updated change boot order help string. Deleted Sata menu help text. Added Early system boot timeout. Removed redundant NIC ports. Removed PCIE port 1b. Removed Performance P-limit item.
October 2015	0.99	Removed DCA as not support according to KNL BWG 2.1.10. Removed PFLOOR as not support. Removed RSTE option in RAID mode. Updated MCDRAM patch version string. Added data scrambling options. Added warning for BMC related option cannot changed by ITK tool. Changed DCU Instruction Prefetcher" &"DCU Streamer Prefetcher" to "L1 Prefetcher" and "L2 Prefetcher".
November 2015	1.00	Updated Tile Disable Bitmap help string. Removed Serial port B. System date option description. Added save changes option in Delete EFI Boot Option. Updated IP source page. Changed system recovery date to 01/01/2015.
November 2015	1.01	Removed serial port B related string. Changed Tile Disable Bitmap option string.
January 2016	1.02	Changed memory mode for 2LM string. Modified help string for user3.

Intel® Server Board S7200AP Family BIOS Setup Specification

February 2016	1.03	<p>Changed USB mass storage device number from 8 to 16.</p> <p>Added MLC Streamer and MLC Spatial Prefetcher in Processor Configuration.</p> <p>Updated the string Processor Socket in Processor Configuration.</p> <p>Updated syscfg/ITK support description for black list.</p> <p>Updated the invalid link.</p> <p>Updated the default value of Memory Mode for 2LM to Flat mode.</p> <p>Added 1600 and 1867 MHz option items in Memory Operating Speed Selection.</p>
March 2016	1.04	<p>Updated help text of System Date, System Time, MLC Streamer, SOL for Baseboard Mgmt, SOL for Baseboard Mgmt2, SOL for Dedicated Mgmt NIC, Console Redirection, Save Changes and Exit.</p> <p>Changed "Processor 1 Version" to "Processor 0 Version".</p>
April 2016	1.05	<p>Removed the MLC Streamer and MLC Spatial Prefetcher options</p> <p>Changed "Memory Model" to "Cluster Mode", change "Memory Mode for 2LM" to "Memory Mode" and update relevant help text.</p>
May 2016	1.06	Updated Tile Disable Bitmap (Hex) comments.
June 2016	1.07	<p>Added notes for Remote Management Module screen.</p> <p>Updated the naming of CDROM displayed on the Boot Maintenance Manager screen.</p>
June 2016	1.08	<p>Updated string "Processor PCIe Link Speed Configuration" to "Processor PCIe Link Speed".</p> <p>Added description to Processor PCIe Link Speed field under PCI Configuration section.</p> <p>Updated User Name to allow "1-16 characters" and corresponding help text.</p> <p>Corrected typos.</p>
September 2016	1.09	Removed BIOS setup "Processor C3" option in CPU C-State section.
November 2016	1.10	Removed BIOS setup "C1E Autopromote" option.
January 2017	1.11	<p>Added notes for IOUs fixed settings of KNL-F processor in PCIe* Port Option ROM Control section.</p> <p>Removed the Data Scrambling option from Memory Configuration screen.</p>
July 2017	1.12	<p>Applied new formatting.</p> <p>Edited for clarity.</p>

Disclaimers

Intel technologies' features and benefits depend on system configuration and may require enabled hardware, software, or service activation. Learn more at Intel.com, or from the OEM or retailer.

You may not use or facilitate the use of this document in connection with any infringement or other legal analysis concerning Intel products described herein. You agree to grant Intel a non-exclusive, royalty-free license to any patent claim thereafter drafted which includes subject matter disclosed herein.

No license (express or implied, by estoppel or otherwise) to any intellectual property rights is granted by this document.

The products described may contain design defects or errors known as errata which may cause the product to deviate from published specifications. Current characterized errata are available on request.

Intel disclaims all express and implied warranties, including without limitation, the implied warranties of merchantability, fitness for a particular purpose, and non-infringement, as well as any warranty arising from course of performance, course of dealing, or usage in trade.

Copies of documents which have an order number and are referenced in this document may be obtained by calling 1-800-548-4725 or by visiting www.intel.com/design/literature.htm.

Intel, the Intel logo, Xeon, and Intel Xeon Phi are trademarks of Intel Corporation or its subsidiaries in the U.S. and/or other countries.

*Other names and brands may be claimed as the property of others.

Copyright © 2017 Intel Corporation. All rights reserved.

Table of Contents

1. Introduction	10
1.1 Front Page	10
1.2 Setup Menu	11
2. Main Screen	12
3. Advanced Screen	16
3.1 Processor Configuration	18
3.2 Power & Performance	23
3.2.1 Uncore Power Management	25
3.2.2 CPU P State Control	26
3.2.3 CPU C State Control	28
3.3 Memory Configuration	29
3.3.1 Memory RAS and Performance Configuration	32
3.4 Integrated IO Configuration	34
3.5 Mass Storage Controller Configuration	35
3.5.1 SATA Port Configuration	36
3.6 PCI Configuration	39
3.6.1 NIC Configuration	41
3.6.2 UEFI Network Stack	46
3.6.3 UEFI Option ROM Control	47
3.6.4 PCIe* Port Option ROM Control	48
3.6.5 Processor PCIe* Link Speed	50
3.7 Serial Port Configuration	53
3.8 USB Configuration	54
3.9 System Acoustic and Performance Configuration	57
4. Security Screen	58
5. Server Management Screen	63
5.1 Console Redirection	70
5.2 System Information	73
5.3 BMC LAN Configuration	76
5.3.1 User Configuration	84
6. Boot Maintenance Manager Screen	86
6.1 Advanced Boot Options	89
6.2 Legacy CDROM Order	91
6.3 Legacy Hard Disk Order	92
6.4 Legacy Floppy Order	93
6.5 Legacy Network Device Order	94
6.6 Legacy BEV Device Order	95
6.7 Add EFI Boot Option	95
6.8 Delete EFI Boot Option	96

6.9 Change Boot Order..... 97

7. Boot Manager Screen..... 98

8. Error Manager Screen 100

9. Save & Exit Screen 102

Appendix A. Glossary 105

List of Figures

Figure 1. Front page and setup menu	10
Figure 2. Main screen.....	12
Figure 3. Advanced screen	16
Figure 4. Processor Configuration screen.....	18
Figure 5. Power & Performance screen.....	23
Figure 6. Uncore Power Management screen	25
Figure 7. CPU P State Control screen	26
Figure 8. CPU C State Control screen	28
Figure 9. Memory Configuration screen	29
Figure 10. Memory RAS and Performance Configuration screen	32
Figure 11. Integrated IO Configuration screen	34
Figure 12. Mass Storage Controller Configuration screen.....	35
Figure 13. SATA Port configuration screen.....	36
Figure 14. PCI Configuration screen.....	39
Figure 15. NIC Configuration screen	43
Figure 16. UEFI Network Stack screen	46
Figure 17. UEFI Option ROM Control screen	48
Figure 18. IIO PCIe* lane partitioning	49
Figure 19. PCIe Port Oprom Control screen	50
Figure 20. Processor PCIe Link Speed screen.....	51
Figure 21. Processor Socket x PCIe Link Speed screen	51
Figure 22. Serial Port Configuration screen	53
Figure 23. USB Configuration screen.....	54
Figure 24. System Acoustic and Performance Configuration screen.....	57
Figure 25. Security screen	58
Figure 26. Server Management screen	63
Figure 27. Console Redirection screen	70
Figure 28. System Information screen	73
Figure 29. BMC LAN Configuration screen	77
Figure 30. User Configuration screen	84
Figure 31. Boot Maintenance Manager screen	87
Figure 32. Advanced Boot Options screen.....	89
Figure 33. Legacy CDROM Order screen	92
Figure 34. Legacy Hard Disk Order screen	93
Figure 35. Legacy Floppy Order screen	93
Figure 36. Legacy Network Device Order screen.....	94
Figure 37. Legacy BEV Device Order screen.....	95
Figure 38. Add EFI Boot Option screen.....	95
Figure 39. Delete EFI Boot Option screen.....	96

Figure 40. Change Boot Order screen 97

Figure 41. Boot Manager screen 98

Figure 42. Error Manager screen 100

Figure 43. Save & Exit screen 102

List of Tables

Table 1. Screen map 11

Table 2. Slot ID and physical address..... 47

1. Introduction

This document describes the screens available in the basic input/output (BIOS) setup utility for the configuration of the server platform.

For each of these screens, there is an image of the screen with a list of field descriptions detailing the contents of each item on the screen. Each item on the screen is hyperlinked to the relevant field description.

These field description lists follow several guidelines:

- The text heading for each field description is the actual text displayed on the BIOS setup screen. The screen text in each figure is a hyperlink to its corresponding field description.
- The text shown as the value for each field description is the actual text displayed on the BIOS setup screen. The text for default value is shown in **bold**.
- The help text entry is the actual text that appears on the BIOS setup screen when the item is in focus (active on the screen).
- The comments entry provides additional information where it may be helpful. This information does not appear on the BIOS setup screen.
- Information enclosed in angular brackets (< >) in the screen figures and field descriptions identifies text that can vary, depending on the option(s) installed. For example, <Amount of memory installed> is replaced by the actual value for the Total Memory field.
- Information enclosed in square brackets ([]) in the field descriptions identifies areas where the user must type in text instead of selecting from a provided option.
- When information is changed (except date and time), the system requires a save and reboot for the changes to take effect. Alternatively, pressing <ESC> discards the changes and resumes power on self-test (POST) to continue to boot the system according to the boot order set from the last boot.

Where indicated, refer to the *Intel® Server Board S7200AP Family BIOS External Product Specification (EPS)* for more information.

1.1 Front Page

The front page is the first screen that appears when the BIOS setup configuration utility is entered and it contains the entry to BIOS setup menu.

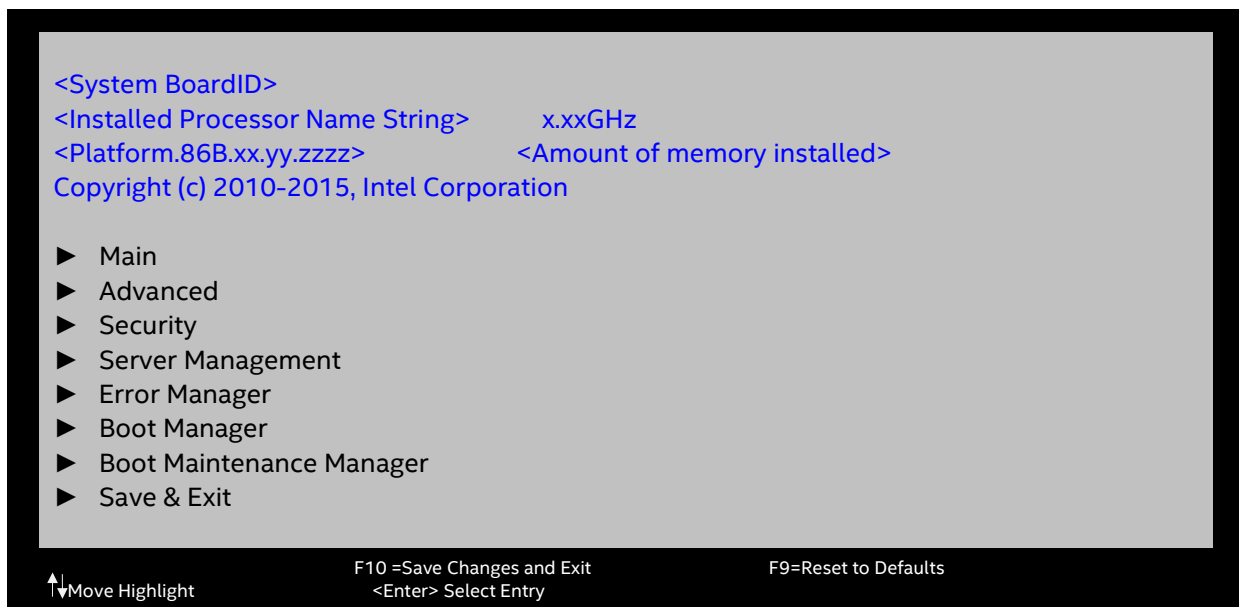


Figure 1. Front page and setup menu

1.2 Setup Menu

The setup menu contains the entire BIOS setup collection and organizes them into major categories. Each category has a hierarchy with a top-level screen from which lower-level screens may be selected.

Each top-level screen appears as a tab entry, arranged across the top of all top-level screens. To access a top-level screen from the front page or other top-level screen, press the up or down arrow keys to traverse the tabs until the desired screen is selected.

The categories and the screens included in each category are listed below, with links to each of the screens named.

Table 1. Screen map

Top-Level Categories	Second Level Screens	Third Level Screens
Main Screen	-	-
Advanced Screen	Processor Configuration	-
	Power & Performance	Uncore Power Management
		CPU P State Control
		CPU C State Control
	Memory Configuration	Memory RAS and Performance Configuration
	Integrated IO Configuration	-
	Mass Storage Controller Configuration	SATA Port Configuration
	PCI Configuration	NIC Configuration
		UEFI Network Stack
		UEFI Option ROM Control
		PCIe* Port Oprom Control
		Processor PCIe* Link Speed Configuration
	Serial Port Configuration	-
	USB Configuration	-
	System Acoustic and Performance Configuration	-
Security Screen	-	-
Server Management Screen	Console Redirection	-
	System Information	-
	BMC LAN Configuration	User Configuration
Error Manager Screen	-	-
Boot Manager Screen	-	-
Boot Maintenance Manager Screen	Advanced Boot Options	-
	Legacy CDROM Order	-
	Legacy Hard Disk Order	-
	Legacy Floppy Order	-
	Legacy Network Device Order	-
	Legacy BEV Device Order	-
	Add EFI Boot Option	-
	Delete EFI Boot Option	-
	Change Boot Order	-
Save & Exit Screen	-	-

2. Main Screen

When the BIOS setup configuration utility is entered, to access the Main screen from the front page or other top-level screen, press the up or down arrow keys to traverse the tabs at the top of the Setup screen until the **Main** screen is selected.

Main

Logged in asAdministrator/User

Platform ID<Platform identification string>

System BIOS

BIOS Boot FromPrimary/Backup

Primary BIOS Version<Platform.86B.xx.yy.zzzz>

Primary BIOS Build Date<MM/DD/YYYY>

Backup BIOS Version<Platform.86B.xx.yy.zzzz>

Backup BIOS Build Date<MM/DD/YYYY>

Memory

Total Memory<Amount of memory installed>

Quiet BootEnabled/Disabled

POST Error PauseEnabled/Disabled

System Date[MM/DD/YYYY]

System Weekday[Day]

System Time[HH:MM:SS]

↩←→Move Highlight

F10=Save Changes and Exit

F9=Reset to Defaults

<Enter> = Select Entry

Esc=Exit

Figure 2. Main screen

1. Logged in as

- Value: Administrator/User
- Help text: None
- Comments: *Information only.* Displays password level that setup is running in: Administrator or User. With no passwords set, Administrator is the default mode. For more information about BIOS password protection, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 9.1.
- Back to: [Main Screen – Screen map](#)

2. Platform ID

Value: <Platform identification string>

Help text: None

Comments: *Information only.* Displays the platform ID (board ID) for the board on which the BIOS is executing POST. For the Intel® Server Board S7200AP, the platform identification string is S7200AP.

The platform ID is limited to eight characters, a limitation of Advanced Configuration and Power Interface (ACPI) tables.

For a list of platform IDs and related product-specific information, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 11.

Back to: [Main Screen – Screen map](#)

3. BIOS Boot From

Value: **Primary/Backup**

Help text: None

Comments: *Information only.* Displays the exact BIOS portion on the board which is executing POST. Boot from backup BIOS means the BIOS is running in recovery mode and the primary BIOS may be corrupted.

Back to: [Main Screen – Screen map](#)

4. Primary BIOS Version

Value: <Platform.86B.xx.yy.zzzz>

Help text: None

Comments: *Information only.* The BIOS version uniquely identifies the primary BIOS that is currently installed and operational on the board. The version information displayed is taken from the BIOS ID string, with the timestamp segment dropped off. The segments displayed are:

- Platform – Identifies the server platform.
- 86B – Identifies this BIOS as being an Intel server BIOS.
- xx – Major revision level of the BIOS.
- yy – Release revision of the BIOS.
- zzzz – Release number of the BIOS.

For full details about interpreting the BIOS ID string, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 3.1.2

Back to: [Main Screen – Screen map](#)

5. Primary BIOS Build Date

Value: <MM/DD/YYYY>

Help text: None

Comments: *Information only.* The date displayed is taken from the timestamp segment of the BIOS ID string and indicates the date when the currently installed primary BIOS was created (built). For full details about the BIOS ID string, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 3.1.2.

Back to: [Main Screen – Screen map](#)

6. Backup BIOS Version

Value: <Platform.86B.xx.yy.zzzz>

Help text: None

Comments: *Information only.* The BIOS version uniquely identifies the backup BIOS that is currently installed and operational on the board. The version information displayed is taken from the BIOS ID string, with the timestamp segment dropped off. The segments displayed are:

- Platform – Identifies the server platform.
- 86B – Identifies this BIOS as being an Intel server BIOS.
- xx – Major revision level of the BIOS.
- yy – Release revision of the BIOS.
- zzzz – Release number of the BIOS.

For full details about interpreting the BIOS ID string, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 3.1.2

Back to: [Main Screen](#) – [Screen map](#)

7. Backup BIOS Build Date

Value: <MM/DD/YYYY>

Help text: None

Comments: *Information only.* The date displayed is taken from the timestamp segment of the BIOS ID string and indicates the date when the currently installed backup BIOS was created (built). For full details about the BIOS ID string, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 3.1.2.

Back to: [Main Screen](#) – [Screen map](#)

8. Total Memory

Value: <Amount of memory installed>

Help text: None

Comments: *Information only.* Displays the total physical memory installed in the system, in MB or GB. The term physical memory indicates the total memory discovered in the form of installed DDR4 DIMMs.

Back to: [Main Screen](#) – [Screen map](#)

9. Quiet Boot

Value: **Enabled/Disabled**

Help text: [Enabled] – Display the logo screen during POST.
[Disabled] – Display the diagnostic screen during POST.

Comments: This field controls whether the full diagnostic information is displayed on the screen during POST. For more information on the POST diagnostic screen, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 4.2. When Console Redirection is enabled, the Quiet Boot setting is disregarded and the text mode diagnostic screen is displayed unconditionally.

Back to: [Main Screen](#) – [Screen map](#)

10. POST Error Pause

Value: Enabled/**Disabled**

Help text: [Enabled] – Go to the Error Manager for critical POST errors.
[Disabled] – Attempt to boot and do not go to the Error Manager for critical POST errors.

Comments: If enabled, the POST Error Pause option takes the system to the error manager to review the errors when major errors occur. Minor and fatal error displays are not affected by this setting. For more information, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 10.11.5.2.

Back to: [Main Screen – Screen map](#)

11. System Date

Value: [MM/DD/YYYY]

Help text: System Date has configurable fields for the current Month, Day, and Year.
The year must be between 2015 and 2099.
Use [Enter], [+] or [-] key to modify the selected field.
Use [<-] or [->] key to select the previous or next field.

Comments: This field initially displays the current system date. It may be edited to change the system date. When the system date is reset by the BIOS defaults jumper, BIOS recovery flash update, or other method, the date is the default value – 01/01/2015.

Back to: [Main Screen – Screen map](#)

12. System Weekday

Value: [Day]

Help text: None

Comments: This field initially displays the current system day of the week. This field is read only. Its value is calculated from the system date. When the system time is reset by the BIOS defaults jumper, BIOS recovery flash update, or other method, the weekday is that for 01/01/2015 – Thursday.

Back to: [Main Screen – Screen map](#)

13. System Time

Value: [HH:MM:SS]

Help text: System Time has configurable fields for Hours, Minutes, and Seconds.
Hours are in 24-hour format.
Use [Enter], [+] or [-] key to modify the selected field.
Use [<-] or [->] key to select the previous or next field.

Comments: This field initially displays the current system time in 24-hour format. It may be edited to change the system time. When the system time is reset by the BIOS defaults jumper, BIOS recovery flash update, or other method, the time is the earliest time of day in the allowed range – 00:00:00 (although the time is updated beginning from when it is reset early in POST).

Back to: [Main Screen – Screen map](#)

3. Advanced Screen

The Advanced screen provides an access point to configure several groups of advanced options. On this screen, select the option group to be configured. Configuration actions are performed on the selected screen and not directly on the Advanced screen.

This screen is the same for all board series, selecting between the same groups of options, although the options for different boards are not necessarily identical.

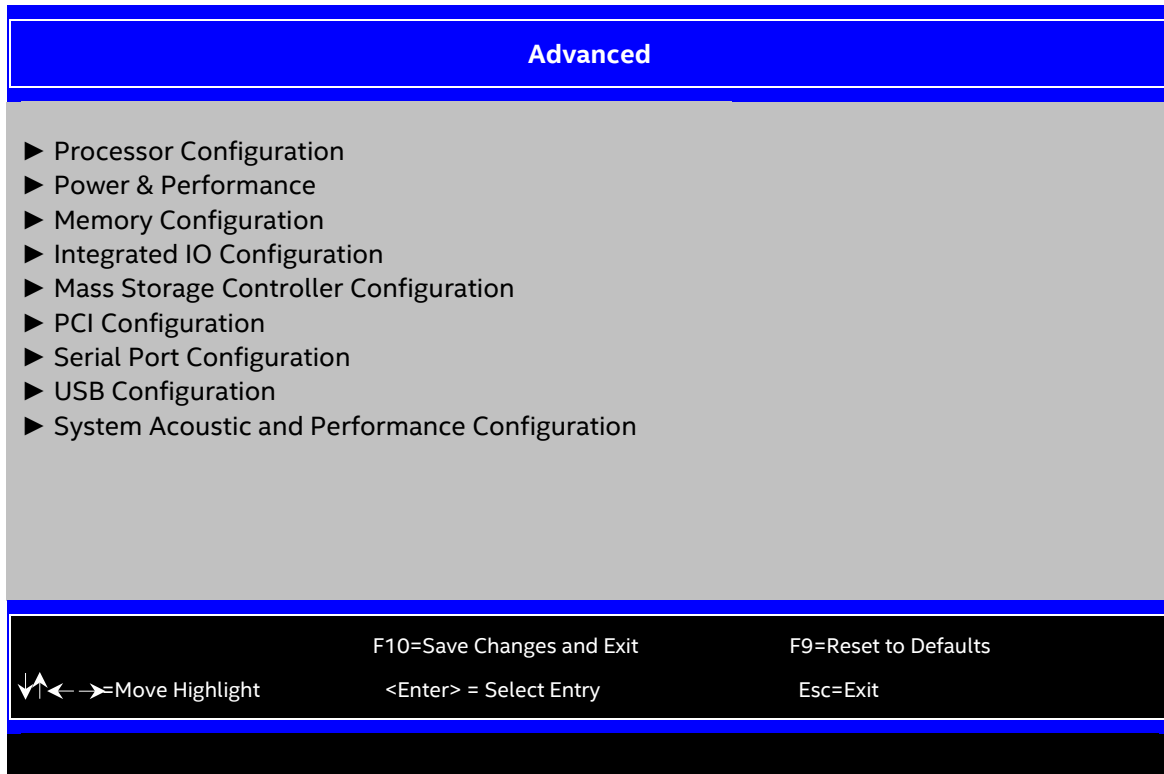


Figure 3. Advanced screen

1. Processor Configuration

Value: None

Help text: View/Configure processor information and settings.

Comments: *Selection only.* For more information on Processor Configuration settings, see section 3.1.

Back to: [Advanced Screen – Screen map](#)

2. Power & Performance

Value: None

Help text: View/Configure power & performance information and settings.

Comments: *Selection only.* For more information on Power & Performance settings, see section 3.2.

Back to: [Advanced Screen – Screen map](#)

3. Memory Configuration

Value: None

Help text: View/Configure memory information and settings.

Comments: *Selection only.* For more information on Memory Configuration settings, see section 3.3.

Back to: [Advanced Screen – Screen map](#)

4. Integrated IO Configuration

Value: None

Help text: View/Configure Integrated IO information and settings.

Comments: *Selection only.* For more information on Integrated IO Configuration settings, see section 3.4.

Back to: [Advanced Screen – Screen map](#)

5. Mass Storage Controller Configuration

Value: None

Help text: View/Configure mass storage controller information and settings.

Comments: *Selection only.* For more information on Mass Storage Controller Configuration settings, see section 3.5.

Back to: [Advanced Screen – Screen map](#)

6. PCI Configuration

Value: None

Help text: View/Configure PCI information and settings.

Comments: *Selection only.* For more information on PCI Configuration settings, see section 3.6.

Back to: [Advanced Screen – Screen map](#)

7. Serial Port Configuration

Value: None

Help text: View/Configure serial port information and settings.

Comments: *Selection only.* For more information on Serial Port Configuration settings, see section 3.7.

Back to: [Advanced Screen – Screen map](#)

8. USB Configuration

Value: None

Help text: View/Configure USB information and settings.

Comments: *Selection only.* For more information on USB Configuration settings, see section 3.8.

Back to: [Advanced Screen – Screen map](#)

9. System Acoustic and Performance Configuration

Value: None

Help text: View/Configure system acoustic performance information and settings.

Comments: *Selection only.* For more information on System Acoustic and Performance Configuration settings, see section 3.9.

Back to: [Advanced Screen](#) – [Screen map](#)

3.1 Processor Configuration

The Processor Configuration screen displays the processor identification and microcode level, core frequency, cache sizes, and Intel® QuickPath Interconnect (Intel® QPI) information for all processors currently installed. It also allows the user to enable or disable a number of processor options.

To access this screen from the front page, select **Advanced** > **Processor Configuration**. Press the <Esc> key to return to the Advanced screen.


Processor Configuration	
Processor Socket	CPU 0
Processor ID	<CPUID>
Processor Frequency	<Proc Freq>
Microcode Revision	<Rev data>
L1 Cache RAM	<L1 Cache Size>
L2 Cache RAM	<L2 Cache Size>
Processor 0 Version	<ID string from Processor 0>
Intel(R) Hyper-Threading Tech	Enabled/Disabled
Tile Disable Bitmap (Hex)	[0]
Execute Disable Bit	Enabled/Disabled
Intel(R) Virtualization Technology	Enabled/ Disabled
Enhanced Error Containment Mode	Enabled/ Disabled
L1 Prefetcher	Enabled/Disabled
L2 Prefetcher	Enabled/Disabled
<div> <div>  Move Highlight </div> <div> F10=Save Changes and Exit <Enter> = Select Entry </div> <div> F9=Reset to Defaults Esc=Exit </div> </div>	

Figure 4. Processor Configuration screen

1. Processor ID

Value: <CPUID>

Help text: None

Comments: *Information only.* Displays the processor signature value (from the CPUID instruction) identifying the type of processor and the stepping. For more information about supported processors, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 3.3.2.

For multi-socket boards, the processor selected as the bootstrap processor (BSP) has an asterisk (*) displayed beside the processor ID. "N/A" is displayed for a processor if not installed.

Back to: [Processor Configuration – Advanced Screen – Screen map](#)

2. Processor Frequency

Value: <Current processor frequency>

Help text: None

Comments: *Information only.* Displays current operating frequency of the processor.

Single-socket boards have a single processor display; two-socket and four-socket boards have a display column for each socket, showing "N/A" for empty sockets where processors are not installed.

Back to: [Processor Configuration – Advanced Screen – Screen map](#)

3. Microcode Revision

Value: <Microcode revision number>

Help text: None

Comments: *Information only.* Displays the revision level of the currently loaded processor microcode.

Single-socket boards have a single processor display; two-socket and four-socket boards have a display column for each socket, showing "N/A" for empty sockets where processors are not installed.

Back to: [Processor Configuration – Advanced Screen – Screen map](#)

4. L1 Cache RAM

Value: <L1 cache size>

Help text: None

Comments: *Information only.* Displays size in KB of the processor L1 cache. Since L1 cache is not shared between cores, this is shown as the amount of L1 cache per core. There are two types of L1 cache, so this amount is the total of L1 Instruction Cache plus L1 Data Cache for each core.

Single-socket boards have a single processor display; two-socket and four-socket boards have a display column for each socket, showing "N/A" for empty sockets where processors are not installed.

Back to: [Processor Configuration – Advanced Screen – Screen map](#)

5. L2 Cache RAM

Value: <L2 cache size>

Help text: None

Comments: *Information only.* Displays size in KB of the processor L2 cache. Since L2 cache is not shared between cores, this is shown as the amount of L2 cache per core.

Single-socket boards have a single processor display; two-socket and four-socket boards have a display column for each socket, showing "N/A" for empty sockets where processors are not installed.

Back to: [Processor Configuration – Advanced Screen – Screen map](#)

6. Processor 0 Version

Value: <ID string from processor>

Help text: None

Comments: *Information only.* Displays Brand ID string read from processor with CPUID instruction.

Back to: [Processor Configuration – Advanced Screen – Screen map](#)

7. Intel(R) Hyper-Threading Tech

Value: **Enabled/Disabled**

Help text: Intel(R) Hyper-Threading Technology allows multithreaded software applications to execute threads in parallel within each processor. Contact your OS vendor regarding OS support of this feature.

Comments: This option is only visible if all processors installed in the system support Intel® Hyper-Threading Technology.

Back to: [Processor Configuration – Advanced Screen – Screen map](#)

8. Tile Disable Bitmap (Hex)

Value: [0 – 3FFFFFFFFF]

Help text: 0 : Enable all tiles. Option Values: 0-3FFFFFFFFF. Each valid bit in input value represents a tile in ON/OFF. Restrictions: At least one tile needs to be left active, Otherwise, FW will ignore the setting altogether, so value 3FFFFFFFFF will enable all tiles. If tile count override is enabled, value 3FFFFFFFFF will only enable the desired tile count if available

Comments: Each processor has up to 36 tiles .Each bit in input value represents a tile in ON/OFF. The processor tile masks are always 38 bits long. This is an architectural detail of the processor design. The valid tile mask bits for a specific processor are defined by the factory configuration of that processor. A 36-tile processor has a specific setting of 36 valid bits among the 38 available tile mask bits. These tile mask bits maybe have any combination of bits, and the BIOS can select a specific tile bits setting within the valid tiles mask. Some CPU registers can to refer to these setting.

- FUSED_CORES registers contain the valid bits within the 38-bit tile mask that are available due to factory configuration.
- DESIRED_CORES registers contain the 38-bit mask for tiles that should be disabled on next reset; only bits that match the FUSED_CORES tile mask are valid.

- **RESOLVED_CORES** register contain the 38-bit mask for tiles that are currently available; only bits that match the **FUSED_CORES** tile mask are valid.
- **FUSED_CORES_CFG**(BDF 1:1E:00 offset 0xC0, bit 31:0 Fused core mask, bit 37:32 Fused core mask Ext)
- **RESOLVED_CORES_CFG**(BDF 1:1E:00 offset 0xB8, bit 31:0 Core Mask, bit 37:32 Core Mask Ext)
- **CSR_DESIRED_CORES_CFG**(BDF 1:1E:01 offset 0xA4 Cores off mask)

For example, for one Intel® Xeon Phi™ processor, the **FUSED_CORES_CFG** register is 0xFFFFFA5F, the valid tile bits is 0x0000003FFFFFFFA5F, so it has total 34 tiles valid (68 cores).

- Set Tile Disable Bitmap to 0x3F – The valid disabled bit mask is 0x1F (0x3F and 0xFFFFFA5F), so five tiles are disabled, resulting in 29 valid tiles (58 cores).
- Set Tile Disable Bitmap to 0x3FF – The valid disabled bit mask is 0x25F (0x3FF and 0xFFFFFA5F), so seven tiles are disabled, resulting in 27 valid tiles (54 cores).
- Set Tile Disable Bitmap to 0x3FFFF – The valid disabled bit mask is 0x3FA5F (0x3FFFF and 0xFFFFFA5F), so 14 tiles are disabled, resulting in 20 valid tiles (40 cores).
- Set Tile Disable Bitmap to 0x3FFFFFFF – The valid disabled bit mask is 0x3FFFA5F (0x3FFFFFFF and 0xFFFFFA5F), so 22 tiles are disabled, resulting in 12 valid tiles (24 cores).
- Set Tile Disable Bitmap to 0x1FFFFFFFFF – The valid disabled bit mask is 0x1FFFFFFFA5F (0x1FFFFFFFFF and 0x3FFFFFFFA5F), so 33 tiles are disabled, resulting in one valid tile (2 cores).

Back to: [Processor Configuration – Advanced Screen – Screen map](#)

9. Execute Disable Bit

Value: **Enabled/Disabled**

Help text: Execute Disable Bit can help prevent certain classes of malicious buffer overflow attacks.

Contact your OS vendor regarding OS support of this feature.

Comments: This option is only visible if all processors installed in the system support the Execute Disable Bit. The OS and applications installed must support this feature in order for it to be enabled.

Back to: [Processor Configuration – Advanced Screen – Screen map](#)

10. Intel(R) Virtualization Technology

Value: **Enabled/Disabled**

Help text: Intel(R) Virtualization Technology allows a platform to run multiple operating systems and applications in independent partitions.

Note: A change to this option requires the system to be powered off and then back on before the setting takes effect.

Comments: This option is only visible if all processors installed in the system support Intel® Virtualization Technology (Intel® VT). The software configuration installed on the system must support this feature in order for it to be enabled.

Back to: [Processor Configuration – Advanced Screen – Screen map](#)

11. Enhanced Error Containment Mode

Value: **Enabled/Disabled**

Help text: Enable Enhanced Error Containment Mode (Data Poisoning) – Erroneous data coming from memory will be poisoned. If disabled (default), will be in Legacy Mode – No data poisoning support available.

Comments: Enhanced error containment (data poisoning) is not supported by all models of processors, and this option will not appear unless all installed processors support enhanced error containment. This option globally enables or disables both core and uncore data poisoning, for processors which support them. For more information on enhanced error containment, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 3.3.7.10.

Back to: [Processor Configuration – Advanced Screen – Screen map](#)

12. L1 Prefetcher

Value: **Enabled/Disabled**

Help text: The L1 Prefetcher includes a DCU streamer prefetcher and a DCU IP prefetcher.

Comments: For all processors the default should be enabled. Optionally, the default may be set based on performance results observed during your platform validation and testing with standard workloads. For more information on processor cache prefetch controls, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 3.3.4.1.

Back to: [Processor Configuration – Advanced Screen – Screen map](#)

13. L2 Prefetcher

Value: **Enabled/Disabled**

Help text: The L2 prefetcher uses two mechanisms: Streamer and Spatial.

Comments: For all processors the default should be enabled. Optionally, the default may be set based on performance results observed during your platform validation and testing with standard workloads. For more information on processor cache prefetch controls, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 3.3.4.1.

Back to: [Processor Configuration – Advanced Screen – Screen map](#)

3.2 Power & Performance

The Power & Performance screen allows the user to specify a profile that is optimized in the direction of either reduced power consumption or increased performance.

To access this screen from the front page, select **Advanced > Power & Performance**. Press the **<Esc>** key to return to the Advanced screen.

There are four possible profiles from which to choose. When a power and performance profile is chosen, that in turn causes the system to implement a defined list of setup option settings and internal (non-visible) settings. For details on each of these power and performance profiles, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 3.15.2.

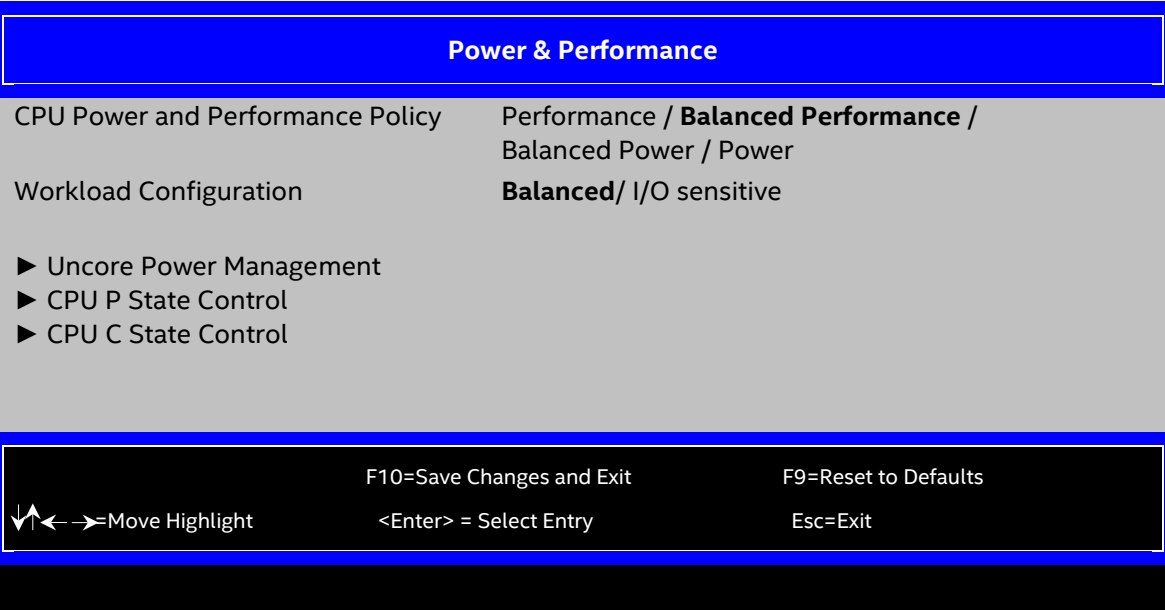


Figure 5. Power & Performance screen

1. CPU Power and Performance Policy

Value: Performance/**Balanced Performance**/Balanced Power/Power

Help text: Allows the user to set an overall power and performance policy for the system, and when changed will modify a selected list of options to achieve the policy. These options are still changeable outside of the policy but do reflect the changes that the policy makes when a new policy is selected.

[Performance] Optimization is strongly toward performance, even at the expense of energy efficiency.

[Balanced Performance] Weights optimization toward performance, while conserving energy.

[Balanced Power] Weights optimization toward energy conservation, with good performance.

[Power] Optimization is strongly toward energy efficiency, even at the expense of performance.

Comments: Choosing one of these four power and performance profiles implements a number of changes in BIOS settings, both visible settings in the setup screens and non-visible internal settings. For detailed lists of settings affected by each profile, see *Intel® Server Board S7200AP Family BIOS EPS* section 3.15.2.

Back to: [Power & Performance – Advanced Screen – Screen map](#)

2. Workload Configuration

Value: **Balanced/I/O Sensitive**

Help text: Controls the aggressiveness of the energy performance BIAS settings. This bit field allows the BIOS to choose a configuration that may improve performance on certain workloads.

Comments: Integrated Voltage Regulator (IVR) enables fine granularity voltage regulation and allows the voltage and frequency of uncore to be programmed independently. The uncore activity is monitored to optimize the frequency in real-time. For more information, see *Intel® Server Board S7200AP Family BIOS EPS* section 3.15.2. This option is only visible when Enhanced Intel SpeedStep® Technology is enabled by the BIOS.

Back to: [Power & Performance – Advanced Screen – Screen map](#)

3. Uncore Power Management

Value: None

Help text: View/Configure uncore information and settings.

Comments: *Selection only.* For more information on Uncore Power Management settings, see section 3.2.1.

Back to: [Power & Performance – Advanced Screen – Screen map](#)

4. CPU P State Control

Value: None

Help text: View/Configure CPU P State Control information and settings.

Comments: *Selection only.* For more information on CPU P State Control settings, see section 3.2.2.

Back to: [Power & Performance – Advanced Screen – Screen map](#)

5. CPU C State Control

Value: None

Help text: View/Configure CPU C State Control information and settings.

Comments: *Selection only.* For more information on CPU C State Control settings, see section 3.2.3.

Back to: [Power & Performance – Advanced Screen – Screen map](#)

3.2.1 Uncore Power Management

The Uncore Power Management screen allows the user to view or configure the uncore frequency scaling information by setting to Enabled/Disabled.

To access this screen from the front page, select **Advanced > Power & Performance > Uncore Power Management**. Press the **<Esc>** key to return to the Power & Performance screen.

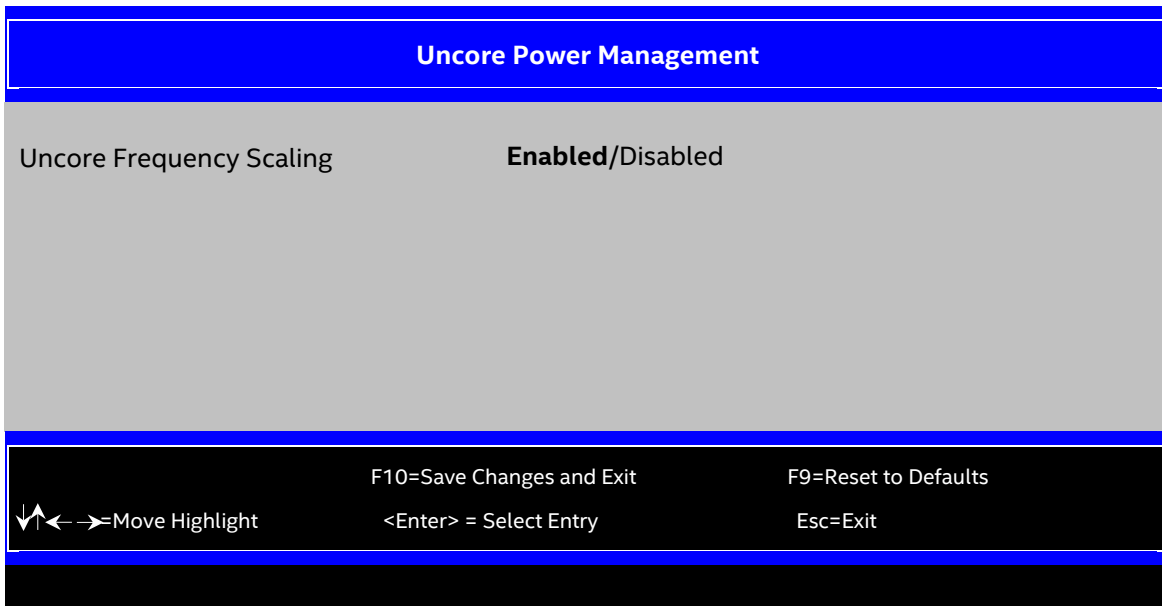


Figure 6. Uncore Power Management screen

1. Uncore Frequency Scaling

Value: **Enabled/Disabled**

Help text: Allows the voltage and frequency of Uncore to be programmed independently. The Uncore activity is monitored to optimize the frequency in real-time.

Comments: IVR enables fine granularity voltage regulation and allows the voltage and frequency of Uncore to be programmed independently. The Uncore activity is monitored to optimize the frequency in real-time. For more information, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 3.15.2. This option is only visible when Enhanced Intel SpeedStep® Technology is enabled by the BIOS.

Back to: [Uncore Power Management – Power & Performance – Advanced Screen – Screen map](#)

3.2.2 CPU P State Control

The CPU P State Control screen allows the user to specify a policy which is optimized for the processors with the direction of either reduced power consumption or increased performance.

To access this screen from the front page, select **Advanced > Power & Performance > CPU P State Control**. Press the **<Esc>** key to return to the Power & Performance screen.

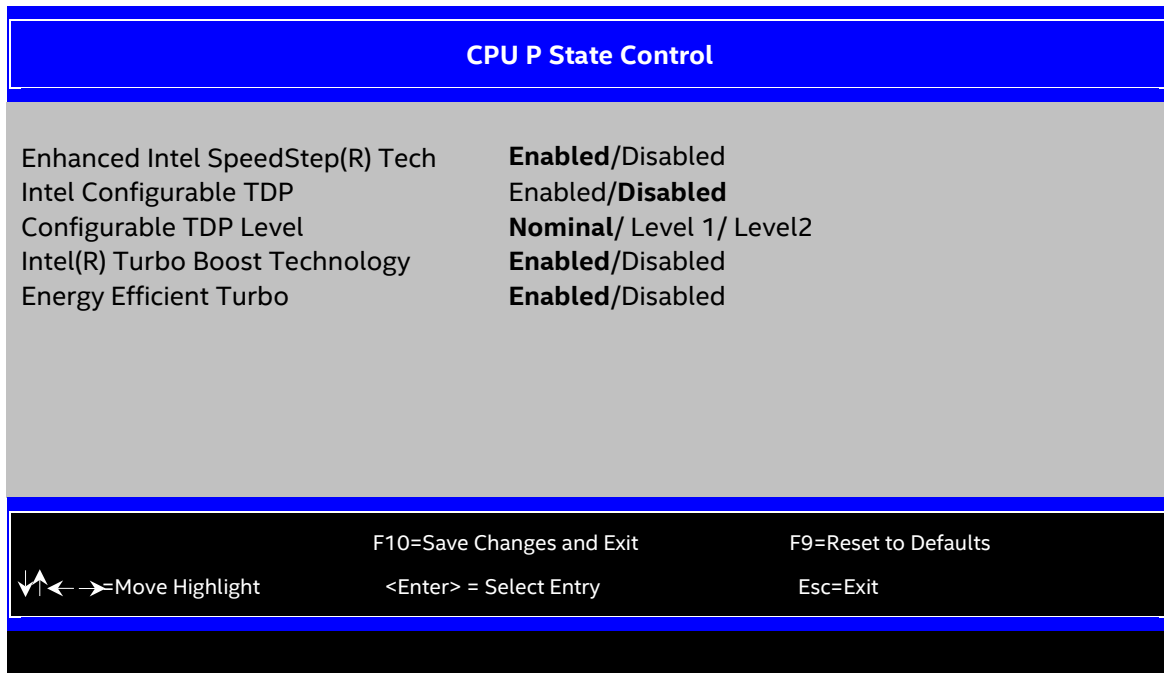


Figure 7. CPU P State Control screen

1. Enhanced Intel SpeedStep(R) Tech

Value: **Enabled/Disabled**

Help text: Enhanced Intel SpeedStep(R) Technology allows the system to dynamically adjust processor voltage and core frequency, which can result in decreased average power consumption and decreased average heat production.
Contact your OS vendor regarding OS support of this feature.

Comments: When disabled, the processor setting reverts to running at maximum thermal design power (TDP) core frequency (rated frequency).

This option is only visible if all processors installed in the system support Enhanced Intel SpeedStep® Technology. In order for the Intel® Turbo Boost option to be available, Enhanced Intel SpeedStep Technology must be enabled.

Back to: [CPU P State Control – Power & Performance – Advanced Screen – Screen map](#)

2. Intel Configurable TDP

Value: **Enabled/Disabled**

Help text: Allows the user to disable/enable Intel Config TDP.

Comments: This option is only visible if all processors installed in the system support Configurable TDP (cTDP) technology. In order for this option to be available, Enhanced Intel SpeedStep Technology must be enabled.

Back to: [CPU P State Control – Power & Performance – Advanced Screen – Screen map](#)

3. Configurable TDP Level

Value: **Nominal/Level 1/Level 2**

Help text: Allows the user to select Intel Config TDP level - Nominal is the default TDP.

Comments: This option is only visible if all processors installed in the system support Configurable TDP (cTDP) technology. In order for this option to be available, Enhanced Intel SpeedStep Technology and Configurable TDP must be enabled.

Back to: [CPU P State Control](#) – [Power & Performance](#) – [Advanced Screen](#) – [Screen map](#)

4. Intel(R) Turbo Boost Technology

Value: **Enabled/Disabled**

Help text: Intel(R) Turbo Boost Technology allows the processor to automatically increase its frequency if it is running below power, temperature, and current specifications.

Comments: This option is only visible if all processors installed in the system support Intel Turbo Boost Technology. In order for this option to be available, Enhanced Intel SpeedStep Technology must be enabled.

Back to: [CPU P State Control](#) – [Power & Performance](#) – [Advanced Screen](#) – [Screen map](#)

5. Energy Efficient Turbo

Value: **Enabled/Disabled**

Help text: When Energy Efficient Turbo is enabled, the CPU cores only enter the turbo frequency when the PCU detects high utilization.

Comments: This option is only visible if all processors installed in the system support Intel Turbo Boost Technology. In order for this option to be available, Intel Turbo Boost Technology must be enabled.

Back to: [CPU P State Control](#) – [Power & Performance](#) – [Advanced Screen](#) – [Screen map](#)

3.2.3 CPU C State Control

The CPU C State Control screen allows the user to specify a policy which is optimized for the processor's sleep state.

To access this screen from the front page, select **Advanced** > **Power & Performance** > **CPU C State Control**. Press the <Esc> key to return to the Power & Performance screen.

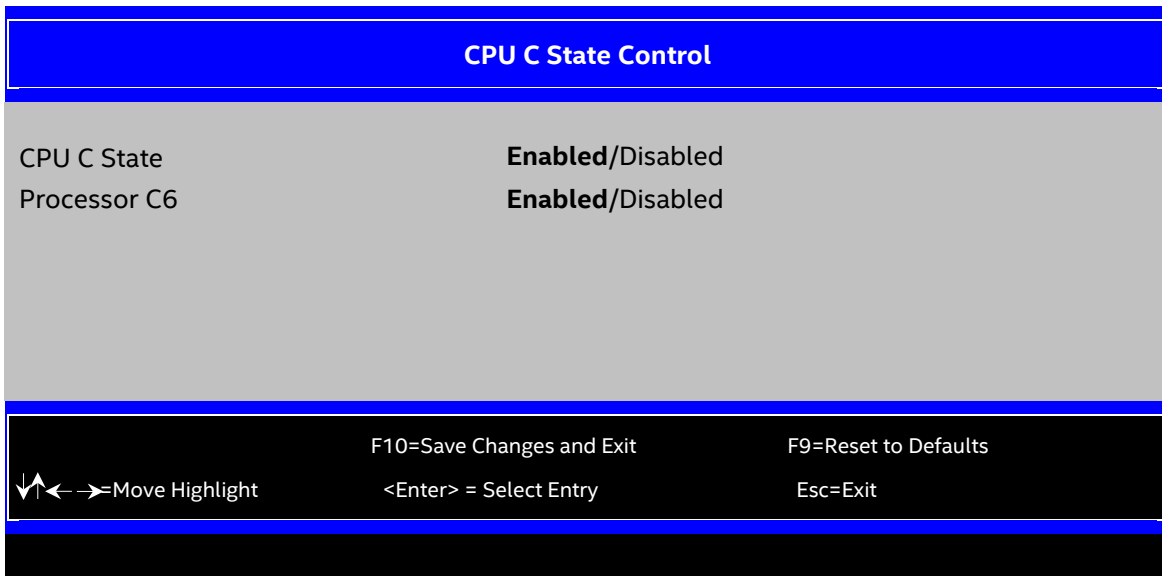


Figure 8. CPU C State Control screen

1. CPU C State

Value: **Enabled/Disabled**

Help text: When CPU C-State is enabled, the CPU cores enter the sleep state when there is no loading on it.

Comments: This option is the main switch for all CPU C-states.

Back to: [CPU C State Control](#) – [Power & Performance](#) – [Advanced Screen](#) – [Screen map](#)

2. Processor C6

Value: **Enabled/Disabled**

Help text: Enable/Disable Processor C6 (ACPI C3) report to OS.

Comments: This is normally enabled but can be disabled for improved performance on certain benchmarks and in certain situations.

Back to: [CPU C State Control](#) – [Power & Performance](#) – [Advanced Screen](#) – [Screen map](#)

3.3 Memory Configuration

The Memory Configuration screen allows the user to view details about the DDR4 DIMMs that are installed as system memory and alter BIOS memory configuration settings where appropriate.

For the Intel® Server Board S7200AP family, this screen shows memory system information, has options to select, and allows the user to select the Configure Memory RAS and Performance screen for further system memory information and configuration.

To access this screen from the front page, select **Advanced > Memory Configuration**. Press the **<Esc>** key to return to the **Advanced** screen.

Memory Configuration	
Total Memory	<Total physical memory installed in system>
Effective Memory	<Total effective DDR4+MCDRAM memory>
Current Memory Speed	<Operational memory speed in MT/s>
Memory Operating Speed Selection	Auto /1600/1867/2133/2400
MCDRAM Cache Size	<MCDRAM cache size>
MCDRAM Memory Size	<MCDRAM memory size>
Current MCDRAM Firmware Version	<MCDRAM firmware version>
Cluster Mode	All2All /SNC-2/SNC-4/Hemisphere/Quadrant/Auto
Memory Mode	Cache/ Flat /Hybrid/Auto
▶ Memory RAS and Performance Configuration	
DIMM Information	
DIMM_A	<DIMM size> <DIMM status>
DIMM_B	<DIMM size> <DIMM status>
DIMM_C	<DIMM size> <DIMM status>
DIMM_D	<DIMM size> <DIMM status>
DIMM_E	<DIMM size> <DIMM status>
DIMM_F	<DIMM size> <DIMM status>
<div> <div> ↓↑←→ Move Highlight </div> <div> F10=Save Changes and Exit <Enter> = Select Entry </div> <div> F9=Reset to Defaults Esc=Exit </div> </div>	

Figure 9. Memory Configuration screen

1. Total Memory

Value: <Total physical memory installed in the system>

Help text: None

Comments: *Information only.* Displays the amount of memory in GB available in the system in the form of installed DDR4 DIMMs.

Back to: [Memory Configuration](#) – [Advanced Screen](#) – [Screen map](#)

2. Effective Memory

Value: <Total effective memory>

Help text: None

Comments: *Information only.* Displays the amount of memory available to the OS in MB or GB.

The effective memory is the total physical memory minus the sum of all memory reserved for internal usage, RAS redundancy, and system management RAM (SMRAM).

Note: Some server operating systems do not display the total physical memory installed.

For more information on memory sizing, refer to *Intel® Server Board S7200AP Family BIOS EPS* sections 3.4.9 and, especially, 3.4.9.2.

Back to: [Memory Configuration](#) – [Advanced Screen](#) – [Screen map](#)

3. Current Memory Speed

Value: <Operational memory speed in MT/s>

Help text: None

Comments: *Information only.* Displays the speed in MT/s at which the memory is currently running.

The supported memory speeds are 2133 MT/s and 2400 MT/s. The actual memory speed capability depends on the memory configuration.

Back to: [Memory Configuration](#) – [Advanced Screen](#) – [Screen map](#)

4. Memory Operating Speed Selection

Value: **Auto**/1600/1867/2133/2400

Help text: Force specific Memory Operating Speed or use Auto setting.

Comments: Allows the user to select a specific speed at which memory operates. Only speeds that are legitimate are available; that is, the user can only specify speeds less than or equal to the auto-selected memory operating speed. The default Auto setting selects the highest achievable memory operating speed consistent with the installed DIMMs and processors.

Back to: [Memory Configuration](#) – [Advanced Screen](#) – [Screen map](#)

5. MCDRAM Cache Size

Value: <Multi-channel DRAM (MCDRAM) cache size in the system>

Help text: None

Comments: *Information only.*

Back to: [Memory Configuration](#) – [Advanced Screen](#) – [Screen map](#)

6. MCDRAM Memory Size

Value: <MCDRAM memory size in the system>

Help text: None

Comments: *Information only.*

Back to: [Memory Configuration – Advanced Screen – Screen map](#)

7. Current MCDRAM Firmware Version

Value: <Current MCDRAM firmware version>

Help text: None

Comments: *Information only.* Displays the current MCDRAM firmware version, consisting of a major and minor version in two-byte data format.

Back to: [Memory Configuration – Advanced Screen – Screen map](#)

8. Cluster Mode

Value: **All2All**/SNC-2/SNC-4/Hemisphere/Quadrant/Auto

Help text: Select Cluster Mode. Auto will try to set Quadrant model if supported.

Comments: For more information on the cluster mode, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 3.4.5.1.

Back to: [Memory Configuration – Advanced Screen – Screen map](#)

9. Memory Mode

Value: Cache/**Flat**/Hybrid/Auto

Help text: Select Memory Mode. Auto will try to set Cache mode if supported.

Comments: For more information on memory modes, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 3.4.5.1.

Back to: [Memory Configuration – Advanced Screen – Screen map](#)

10. Memory RAS and Performance Configuration

Value: None

Help text: Configure memory RAS (Reliability, Availability, and Serviceability) and view current memory performance information and settings.

Comments: *Selection only.* For more information on Memory RAS and Performance Configuration settings, see section 3.3.1

Back to: [Memory Configuration – Advanced Screen – Screen map](#)

11. DIMM Information

DIMM_A, DIMM_B, DIMM_C, DIMM_D, DIMM_E, DIMM_F

Value: <DIMM size><DIMM status>

Help text: None

Comments: *Information only.* Displays the status of each DIMM socket present on the board. There is one line for each DIMM socket.

For each DIMM socket, the DIMM status reflects one of the following three possible states:

- Installed & Operational – There is a DDR4 DIMM installed and operational in this slot.
- Not Installed – There is no DDR4 DIMM installed in this slot.
- Failed/Disabled – The DIMM installed in this slot has failed during initialization and/or was disabled during initialization.

For each DIMM that is in the Installed & Operational state, the DIMM size in GB of that DIMM is displayed. This is the physical size of the DIMM, regardless of how it is counted in the effective memory size.

For details about different board configurations, refer to *Intel® Server Board S7200AP Family BIOS EPS* sections 3.4.5.1 and 11.

Back to: [Memory Configuration – Advanced Screen – Screen map](#)

3.3.1 Memory RAS and Performance Configuration

The Memory RAS and Performance Configuration screen allows the user to customize several memory configuration options.

To access this screen from the front page, select **Advanced > Memory Configuration > Memory RAS and Performance Configuration**. Press the <Esc> key to return to the Memory Configuration screen.

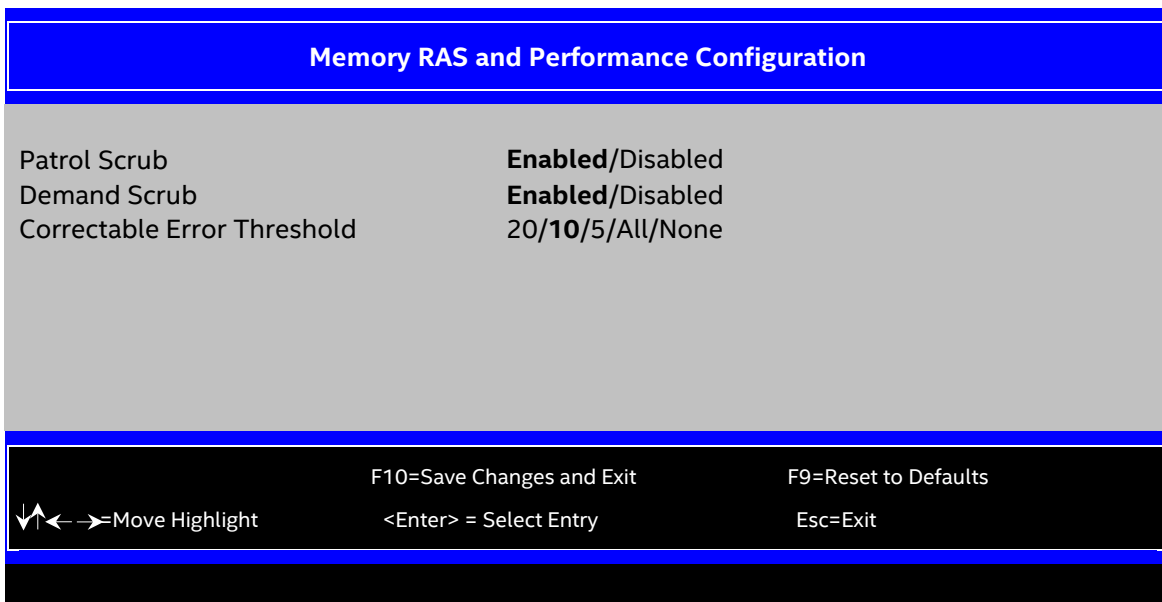


Figure 10. Memory RAS and Performance Configuration screen

1. Patrol Scrub

Value: **Enabled/Disabled**

Help text: When enabled, performs periodic checks on memory cells and proactively walks through populated memory space, to seek and correct soft ECC errors.

Comments: When enabled, Patrol Scrub is initialized to read through all of memory in a 24-hour period, correcting any correctable error correction code (ECC) errors it encounters by writing back the corrected data to memory.

Back to: [Memory RAS and Performance Configuration – Memory Configuration – Advanced Screen – Screen map](#)

2. Demand Scrub

Value: **Enabled/Disabled**

Help text: When enabled, executes when an ECC error is encountered during a normal read/write of data and corrects that data.

Comments: When enabled, Demand Scrub automatically corrects a correctable ECC error encountered during a fetch from memory by writing back the corrected data to memory.

Back to: [Memory RAS and Performance Configuration – Memory Configuration – Advanced Screen – Screen map](#)

3. Correctable Error Threshold

Value: **20/10/5/All/None**

Help text: Threshold value for logging Correctable Errors (CE) – Threshold of 10 (default) logs 10th CE, "All" logs every CE, and "None" means no CE logging. All and None are not valid with Rank Sparing.

Comments: Specifies how many correctable errors (CEs) must occur before triggering the logging of a system event log (SEL) CE event. Only the first threshold crossing is logged, unless the All or None options are selected. The All option causes every CE that occurs to be logged. The None option suppresses CE logging completely.

When Rank Sparing RAS Mode is configured, All and None are not valid and are not present as choices.

This threshold is applied on a per-rank basis. CE occurrences are counted for each memory rank. When any one rank accumulates a CE count equal to the CE threshold, then a single SEL CE event is logged, and all further CE logging is suppressed.

Note that the CE counts are subject to a "leaky bucket" mechanism that reduces the count as a function of time, to keep from accumulating counts unnecessarily over the term of a long operational run. For details on correctable errors, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 10.7.3.1.

This is also the CE threshold used when Rank Sparing RAS Mode is configured. When a CE threshold crossing occurs in Rank Sparing Mode on a channel which is in the Redundant state, it causes a Sparing Fail Over (SFO) event to occur. That threshold crossing is also logged as a CE event if it is the first to occur in the system.

Back to: [Memory RAS and Performance Configuration – Memory Configuration – Advanced Screen – Screen map](#)

3.4 Integrated IO Configuration

The Integrated IO Configuration screen allows the user to configure the integrated IO used for onboard devices inside the processors.

To access this screen from the front page, select **Advanced > PCI Configuration**. Press the <Esc> key to return to the Advanced screen.

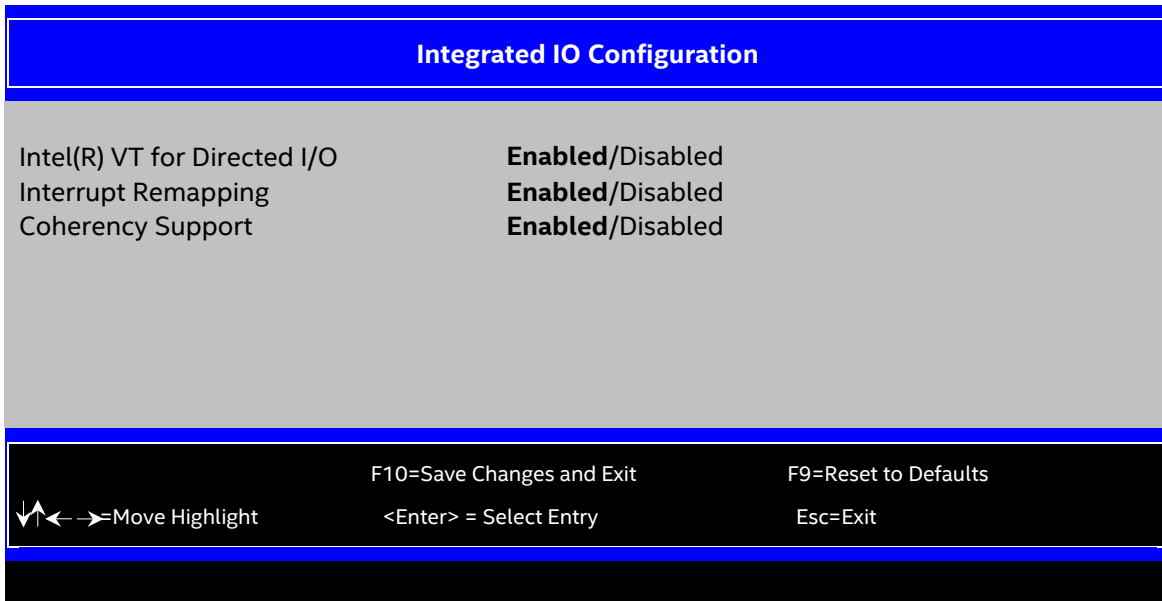


Figure 11. Integrated IO Configuration screen

1. Intel(R) VT for Directed I/O

Value: **Enabled/Disabled**

Help text: Enable/Disable Intel(R) Virtualization Technology for Directed I/O (Intel(R) VT-d).

Report the I/O device assignment to VMM through DMAR ACPI Tables.

Comments: This option is only visible if all processors installed in the system support Intel® Virtualization Technology (Intel® VT) for Directed I/O (Intel® VT-d). The software configuration installed on the system must support this feature in order for it to be enabled.

Back to: [Integrated IO Configuration– Advanced Screen – Screen map](#)

2. Interrupt Remapping

Value: **Enabled/Disabled**

Help text: Enable/Disable Intel(R) VT-d Interrupt Remapping support. For some processors, this option may be "always enabled".

Comments: This option only appears when Intel® VT for Directed I/O is enabled. For some processors this is enabled unconditionally whenever Intel® VT-d is enabled. In that case, this option is shown as Enabled, grayed out, and not changeable.

Back to: [Integrated IO Configuration– Advanced Screen – Screen map](#)

3. Coherency Support

Value: **Enabled/Disabled**

Help text: Enable/Disable Intel(R) VT-d Coherency support.

Comments: This option only appears when Intel® VT for Directed I/O is enabled.

Back to: [Integrated IO Configuration– Advanced Screen – Screen map](#)

3.5 Mass Storage Controller Configuration

The Mass Storage Configuration screen allows the user to configure the mass storage controllers that are integrated into the server board on which the BIOS is executing. This includes only onboard mass storage controllers. Mass storage controllers on add-in cards are not included in this screen, nor are other storage mechanisms such as USB-attached storage devices or network attached storage.

There are two SATA port configurations in this screen, representing the SATA controller and the sSATA controller 2 with SATA drive support and redundant array of independent disks (RAID) support. There are also informational displays of two Advanced Host Controller Interface (AHCI) controller configurations and SATA drive information when applicable.

For more detailed information about mass storage in the Intel® Server Board S7200AP family, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 3.7. For details of the storage configurations supported by the different server boards, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 11.

To access this screen from the front page, select **Advanced > Mass Storage Controller Configuration**. Press the **<Esc>** key to return to the Advanced screen.

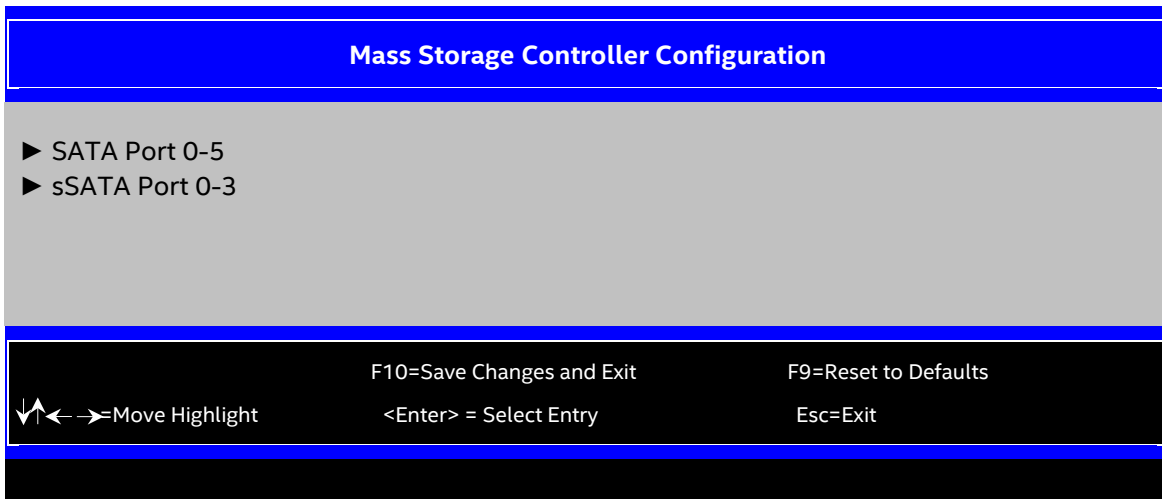


Figure 12. Mass Storage Controller Configuration screen

1. SATA Port 0-5

Value: **None**

Help text: **None**

Comments: *Selection only.* For more information on SATA Port configuration settings, see section 3.5.1.

Back to: [Mass Storage Controller Configuration – Advanced Screen – Screen map](#)

2. sSATA Port 0-3

Value: None

Help text: None

Comments: *Selection only.* For more information on SATA Port configuration settings, see section 3.5.1.

Back to: [Mass Storage Controller Configuration – Advanced Screen – Screen map](#)

3.5.1 SATA Port Configuration

The SATA Port Configuration screen allows the user to configure the AHCI-capable controllers that are integrated into the server board on which the BIOS is executing. There are two onboard controllers – the AHCI SATA controller and the AHCI sSATA controller with SATA drive and RAID support. There are also informational displays of AHCI controller configuration and SATA drive information when applicable.

To access this screen from the front page, select **Advanced > Mass Storage Controller Configuration**. Press the **<Esc>** key to return to the Advanced screen.

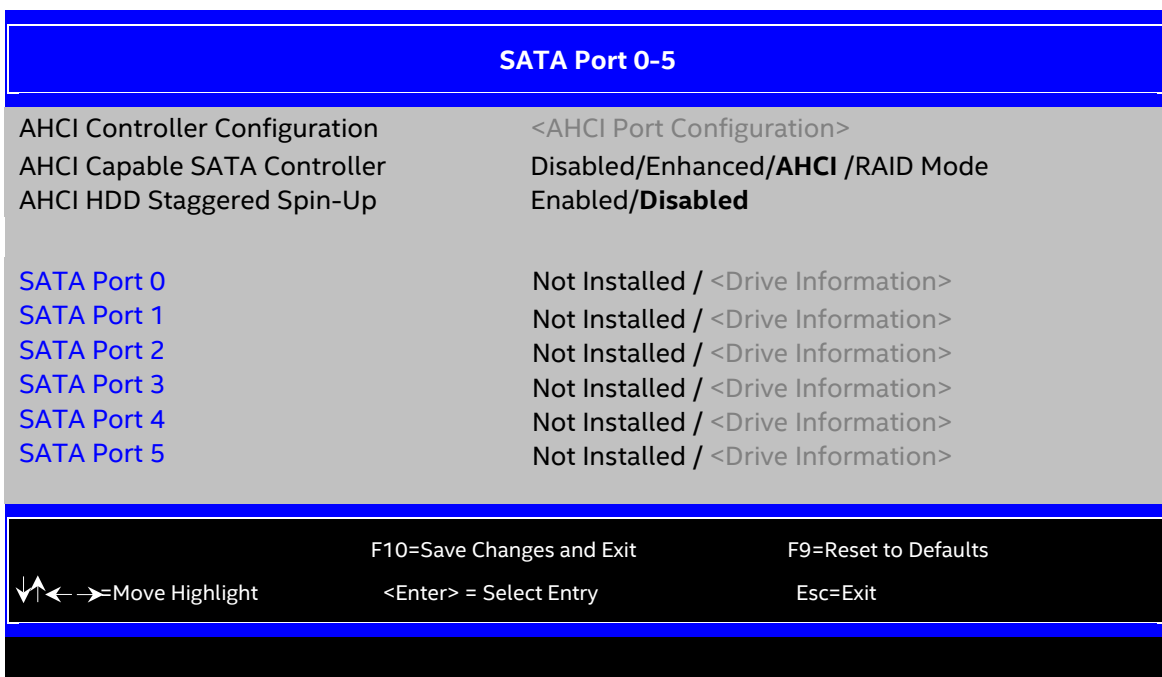


Figure 13. SATA Port configuration screen

1. AHCI Controller Configuration

Value: Controller is disabled/<AHCI port configuration>

Help text: View/Configure processor information and settings.

Comments: *Information only.* This is a display showing which ports are available through the onboard AHCI capable SATA controller, if the controller is enabled. The port configuration is one of the following states:

- Controller is disabled
- 6 ports of 6 Gb/s SATA (for SATA Port 0-5)
- 4 ports of 6 GB/s SATA (for sSATA Port 0-3)

This information is also displayed during POST in the POST diagnostic screen. (*Intel® Server Board S7200AP Family BIOS EPS section 4.2*)

The number of SATA ports available from the integrated AHCI-capable SATA controller is dependent on the specific server board installed in the system. Different server board

designs expose different SATA port configurations. The platform ID (board ID) is displayed in the Main screen, and the corresponding SATA port configuration can be found in *Intel® Server Board S7200AP Family BIOS EPS* section 11.

Back to: [SATA Port Configuration – Mass Storage Controller Configuration – Advanced Screen – Screen map](#)

2. AHCI Capable SATA Controller

Value: Disabled/Enhanced/**AHCI**/RAID Mode

Help text:

- Enhanced provides Native SATA support.
- AHCI enables the Advanced Host Controller Interface, which provides Enhanced SATA functionality.
- RAID Mode provides host based RAID support on the onboard SATA ports.

Comments: This option configures the onboard AHCI-capable SATA controller, which is distinct from the storage control unit (SCU). The number and type of ports it controls differ between board series. For capabilities of specific boards, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 11.

If the SATA controller is disabled, the SATA ports do not operate and any installed SATA devices are unavailable. The Enhanced option provides native SATA support using native SATA drivers included with the vast majority of current OSes. The AHCI option enables AHCI, which provides enhanced SATA functionality and possible additional functionality (native command queuing, hot plug, and staggered spin up). It uses AHCI drivers available for the majority of current OSes. RAID Mode provides host based RAID support on the onboard SATA ports. RAID levels supported and required drivers depend on the RAID stack selected.

Back to: [SATA Port Configuration – Mass Storage Controller Configuration – Advanced Screen – Screen map](#)

3. AHCI HDD Staggered Spin-Up

Value: Enabled/**Disabled**

Help text: If enabled for the AHCI Capable SATA controller, Staggered Spin-Up will be performed on drives attached to it. Otherwise these drives will all spin up at boot.

Comments: This option enables or disables staggered spin-up only for disk drives attached to ports on the AHCI-capable SATA controller. Disk drives attached to SATA/SAS ports on the SCU are controlled by a different method for staggered spin-up and this option does not affect them.

This option is only visible when the SATA controller is enabled and AHCI or RAID has been selected as the operational SATA mode.

Staggered spin-up is needed when there are enough HDDs attached to the system to cause a marked startup power demand surge when all drives start spin-up together. Since the power demand is greatest just as the drive spinning is started, the overall startup power demand can be leveled off by starting up each drive at a slightly different time, so the power demand surges for multiple drives do not coincide and cause too great a power draw.

When staggered spin-up is enabled, it does have a possibility of increasing boot time if there are many HDDs attached, because of the interval between starting drives spinning. However, that is exactly the scenario in which staggered spin-up is most needed, because the more disk drives attached, the greater the startup demand surge.

Setting the external eSATA connector to Enabled (when available) does not invalidate the staggered spin-Up option, although there may be less need for staggered spin-up in a system configured for eSATA use.

Back to: [SATA Port Configuration – Mass Storage Controller Configuration – Advanced Screen – Screen map](#)

4. SATA Port

SATA ports 0-5 for SATA controller and SATA ports 0-3 for sSATA controller

Value: Not installed/<Drive information>

Help text: None

Comments: *Information only.* The drive information, when present, typically consists of the drive model identification and size for the disk drive installed on a particular port.

This drive information line is repeated for the SATA ports for the two onboard AHCI-capable SATA controllers. However, for any given board, only the ports which are physically populated on the board are shown. That is, a board that only implements the two 6 GB/s ports 0 and 1, only shows those two ports in this drive information list.

This section for drive information does not appear when the SATA operational mode is RAID Mode.

Back to: [SATA Port Configuration – Mass Storage Controller Configuration – Advanced Screen – Screen map](#)

3.6 PCI Configuration

The PCI Configuration screen allows the user to configure the PCI memory space used for onboard and add-in adapters, configure video options, and configure onboard adapter options. It also includes a selection option to go to the NIC Configuration screen.

To access this screen from the front page, select **Advanced** > **PCI Configuration**. Press the <Esc> key to return to the Advanced screen.

PCI Configuration	
Memory Mapped I/O above 4 GB	Enabled /Disabled
Memory Mapped I/O Size	Auto/1G/2G/4G/8G/16G/32G/64G/128G/ 256G /512G/1024G
Add-In Video Adapter	Enabled / Disabled
Onboard Video	Enabled / Disabled
 ▶ NIC Configuration ▶ UEFI Network Stack ▶ UEFI Option ROM Control ▶ PCIe* Port Oprom Control ▶ Processor PCIe* Link Speed	
 ↓↑←→ Move Highlight F10=Save Changes and Exit F9=Reset to Defaults <Enter> = Select Entry Esc=Exit	

Figure 14. PCI Configuration screen

1. Memory Mapped I/O above 4 GB

Value: **Enabled/Disabled**

Help text: Enable or disable memory mapped I/O of 64-bit PCI devices to 4 GB or greater address space.

Comments: When enabled, PCI/PCIe* Memory Mapped I/O for devices capable of 64-bit addressing is allocated to address space above 4GB, in order to allow larger allocations and avoid impacting address space below 4G.

Back to: [PCI Configuration](#) – [Advanced Screen](#) – [Screen map](#)

2. Memory Mapped I/O Size

Value: Auto/1G/2G/4G/8G/16G/32G/64G/128G/**256G**/512G/1024G

Help text: Sets the Size of MMIO space above 4GB.

Comments: When Memory Mapped I/O above 4GB option enabled, this option sets the preserved MMIO size as PCI/PCIe Memory Mapped I/O for devices capable of 64-bit addressing. The Auto setting will automatically calculate the required MMIO size of all add-in PCIe devices and try to assign sufficient resource for each device.

This option is grayed out when Memory Mapped I/O above 4GB option is disabled.

Back to: [PCI Configuration](#) – [Advanced Screen](#) – [Screen map](#)

3. Add-In Video Adapter

Value: **Enabled/Disabled**

Help text: When Onboard Video is Enabled, and Add-in Video Adapter is also Enabled, both can be active. The onboard video is still the primary console and active during BIOS POST; the add-in video adapter would be active under an OS environment with the video driver support.

When Onboard Video is Enabled, and Add-in Video Adapter is Disabled, then only the onboard video would be active.

When Onboard Video is Disabled, and Add-in Video Adapter is Enabled, then only the add-in video adapter would be active.

Comments: This option must be enabled to use an add-in card as a primary POST legacy video device. When this option and the Onboard Video option are both enabled, onboard video is the primary POST legacy video device and add-in video is only active under the OS environment with the video driver support.

Back to: [PCI Configuration](#) – [Advanced Screen](#) – [Screen map](#)

4. Onboard Video

Value: **Enabled/Disabled**

Help text: Enable or disable onboard video controller.

Warning: System video is completely disabled if this option is disabled and an add-in video adapter is not installed.

Comments: When disabled, the system requires an add-in video card for the video to be seen. When there is no add-in video card installed, Onboard Video is set to Enabled and grayed out so it cannot be changed.

Back to: [PCI Configuration](#) – [Advanced Screen](#) – [Screen map](#)

5. NIC Configuration

Value: None

Help text: View/Configure NIC information and settings.

Comments: *Selection only.* For more information on NIC Configuration settings, see section 3.6.1.

Back to: [PCI Configuration](#) – [Advanced Screen](#) – [Screen map](#)

6. UEFI Network Stack

Value: None

Help text: View/Configure UEFI Network Stack control settings.

Comments: *Selection only.* For more information on UEFI Network Stack settings, see section 3.6.2.

Back to: [PCI Configuration](#) – [Advanced Screen](#) – [Screen map](#)

7. UEFI Option ROM Control

Value: None

Help text: View/Configure UEFI Option control settings.

Comments: *Selection only.* For more information on UEFI Option ROM Control settings, see section 0.

Back to: [PCI Configuration](#) – [Advanced Screen](#) – [Screen map](#)

8. PCIe Port Oprom Control

Value: None

Help text: View/Configure PCIe Port Oprom control settings.

Comments: *Selection only.* For more information on PCIe* Port option ROM (Oprom) Control settings, see section 3.6.4.

Back to: [PCI Configuration](#) – [Advanced Screen](#) – [Screen map](#)

9. Processor PCIe Link Speed

Value: None

Help text: Allow for selecting target PCIe Link Speed as Gen1, Gen2 or Gen3.

Comments: *Selection only.* For more information on PCIe link speed settings, see section 3.6.5.

Back to: [PCI Configuration](#) – [Advanced Screen](#) – [Screen map](#)

3.6.1 NIC Configuration

The NIC Configuration screen allows the user to configure the network interface card (NIC) controller options for BIOS POST. It also displays the NIC MAC addresses currently in use. This NIC Configuration screen handles network controllers built in on the baseboard (onboard). It does not configure or report anything related to add-in network adapter cards.

To access this screen from the front page, select **Advanced** > **PCI Configuration** > **NIC Configuration**. Press the <Esc> key to return to the PCI Configuration screen.

The descriptive names of the onboard NIC types are:

- Intel® Ethernet Controller I210

For the IO module entries on the NIC Configuration screen, only entries for modules which are currently installed appear and only ports which exist on those IO modules appear.

If an IO module that had been installed is no longer installed when the system is booted, all NIC configuration entries specific to that IO module are reset to their default values and hidden. If a different IO module is installed than had been previously installed, the module-specific settings are still returned to defaults but not hidden. This does not necessarily affect the option ROM settings, which depend on the aggregate capabilities of all installed onboard and IO module NICs.

For each NIC port which is present on an onboard NIC, there is a port-specific PXE Boot enabling option and a MAC Address display. Onboard NICs and NIC ports also have enable/disable options. IO modules and the ports on them cannot be disabled by the BIOS.

For non-InfiniBand* NICs, there are different option ROMs for different protocols, which are also differentiated by speed – 1 Gb or 10 Gb. For a given protocol/speed, all Ethernet controllers of the same speed use the same option ROM.

- **Pre-Execution Environment (PXE)** – There are two separate PXE option ROMs, one for 1 Gb NICs and another for 10 Gb NICs. The two are independent of each other but each must be the only option ROM enabled in its speed class. If 1 GbE PXE is enabled, then the iSCSI option ROM cannot be enabled. If 10 GbE PXE is enabled, then iSCSI cannot be enabled.
- **Internet Small Computer Systems Interface (iSCSI)** – There is only one iSCSI option ROM for both 1 GbE and 10 GbE NICs. If iSCSI is enabled, then the PXE option ROM cannot be enabled for the 1 GbE or 10 GbE NICs.

Note: These option ROMs are only in support of onboard NICs and installed IO modules. They do not support NICs on add-in network cards, even if the NIC on an add-in card is the same type of device as an onboard NIC or IO module controller.

Only the option ROMs for which controller capabilities are present are shown in the screen for selection. For example, if there are no 10 GbE NICs installed, then the 10 GbE option ROMs do not appear for selection. If controller capabilities are present but all controllers with those capabilities are disabled, then the relevant option ROM options appear but are disabled, grayed out, and not changeable.

Similarly, when the PXE option ROM of a given speed is disabled, all PXE port enable/disable options using that OPROM are disabled and grayed out. Conversely, if all ports are disabled for PXE, the PXE option ROM is disabled and grayed out.

When a NIC port is disabled, its PXE enable/disable option is disabled and grayed out and its MAC address is blank. When a NIC controller is disabled, all ports and PXE options for that controller are disabled and grayed out and all MAC addresses for those ports are blank. Conversely, if all ports for a given controller are disabled, the controller itself appears as disabled.

NIC Configuration	
PXE 1GbE Option ROM	Enabled / Disabled
iSCSI 1GbE Option ROM	Enabled/ Disabled
Onboard NIC1 Type	<Onboard NIC Description – Non-InfiniBand>
NIC1 Controller	Enabled / Disabled
NIC1 Port1	Enabled / Disabled
NIC1 Port1 PXE	Enabled / Disabled
NIC1 Port1 MAC Address	<MAC Address display>
Onboard NIC2 Type	<Onboard NIC Description – Non-InfiniBand>
NIC2 Controller	Enabled / Disabled
NIC2 Port1	Enabled / Disabled
NIC2 Port 1 PXE	Enabled / Disabled
NIC 2 Port 1 MAC Address	<MAC Address display >
<div> <div> Move Highlight </div> <div> F10=Save Changes and Exit <Enter> = Select Entry </div> <div> F9=Reset to Defaults Esc=Exit </div> </div>	

Figure 15. NIC Configuration screen

1. PXE 1GbE Option ROM

Value: **Enabled**/Disabled

Help text: Enable/Disable Onboard NIC PXE Option ROM Load.

Comments: This selection is to enable or disable the 1GbE PXE option ROM that is used by all onboard and IO module 1 GbE controllers.

This option is grayed out and not accessible if the iSCSI option ROM is enabled. It can co-exist an InfiniBand* controller option ROM.

If the 1GbE PXE option ROM is disabled and no other option ROM is enabled, the system cannot perform a network boot and cannot respond for wake-on-LAN.

This 1GbE PXE option does not appear unless there is a 1 GbE NIC installed in the system as an onboard or IO module NIC. For product specific information, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 11.

Back to: [NIC Configuration](#) – [PCI Configuration](#) – [Advanced Screen](#) – [Screen map](#)

2. iSCSI 1GbE Option ROM

Value: Enabled/**Disabled**

Help text: Enable/Disable Onboard/IOM NIC iSCSI Option ROM Load.

Comments: This selection is to enable or disable the iSCSI option ROM that is used by all onboard and IO module 1 GbE controllers.

This option is grayed out and not accessible if the 1 GbE PXE option ROM is enabled.

If the iSCSI option ROM is disabled and no other option ROM is enabled, the system cannot perform a network boot and cannot respond for wake-on-LAN.

This iSCSI option does not appear unless there is an iSCSI -capable NIC installed in the system as an onboard or IO module NIC. For product specific information, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 11.

Back to: [NIC Configuration](#) – [PCI Configuration](#) – [Advanced Screen](#) – [Screen map](#)

3. Onboard NIC1 Type

4. Onboard NIC2 Type

Value: <Onboard NIC description>

Help text: None

Comments: *Information only.* This is a display showing which NICs are available as network controllers integrated into the baseboard. The NIC description is

Intel(R) I210 Single-Port Gigabit Ethernet Controller

Each of these onboard NICs is followed by a section including a group of options that are specific to the type of NIC such as an Ethernet controller.

If a board only has one onboard NIC, the second NIC type and following options section does not appear. If there is an InfiniBand controller integrated onboard, it appears as NIC2.

For details about the NIC hardware configuration for a specific board, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 11 or the *Intel® Server Board S7200AP Family Technical Product Specification*.

Back to: [NIC Configuration](#) – [PCI Configuration](#) – [Advanced Screen](#) – [Screen map](#)

5. NIC1 Controller

6. NIC2 Controller

Value: **Enabled/Disabled**

Help text: Enable/Disable Onboard Network Controller.

Comments: This option completely disables the onboard network controller NIC1 or NIC2, along with all included NIC ports and their associated options. If disabled, that controller's NIC ports, port PXE options, and port MAC address displays do not appear.

This option only appears for onboard Ethernet controllers.

Ethernet controllers on IO modules do not have a disabling function that can be controlled by the BIOS, so there is no corresponding controller enable/disable option for an IO module Ethernet controller.

For details about the NIC hardware configuration for a specific board, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 11 or the *Intel® Server Board S7200AP Family Technical Product Specification*.

Back to: [NIC Configuration](#) – [PCI Configuration](#) – [Advanced Screen](#) – [Screen map](#)

7. NIC1 Port1**8. NIC2 Port1**

Value: **Enabled/Disabled**

Help text: Enable/Disable Onboard NIC<n> Port<x>.

Comments: This enables or disables port<x, x = 1-4> of onboard network controller<n, n = 1-2>, including associated port PXE options. The NIC<n> Port<x> PXE option and MAC address display do not appear when that port is disabled.

The associated port enable/disable options do not appear when NIC<n> is disabled.

Only ports that actually exist for a particular NIC appear in this section. That is, Port1-Port4 appear for a quad-port NIC, Port1-Port2 appear for a dual-port NIC, and only Port1 appears for a single-port NIC.

Network controllers installed on an IO Module do not have a port disabling function that is controlled by the BIOS, so there are no corresponding options for IO Module NICs.

For details about the NIC hardware configuration for a specific board, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 11 or the *Intel® Server Board S7200AP Family Technical Product Specification*.

Back to: [NIC Configuration](#) – [PCI Configuration](#) – [Advanced Screen](#) – [Screen map](#)

9. NIC1 Port1 PXE**10. NIC2 Port 1 PXE**

Value: **Enabled/Disabled**

Help text: Enable/Disable Onboard/IOM NIC Port PXE Boot.

Comments: This enables or disables PXE boot capability for Port<x, x = 1-4> of onboard NIC<n, n = 1-2> or IO module<n, n = 1-2>.

This option does not appear for ports on a NIC that is disabled or for individual ports when the corresponding NIC port is disabled.

Only ports that actually exist for a particular NIC or IOM appear in this section. That is, Port1-Port4 appear for a quad-port NIC, Port1-Port2 appear for a dual-port NIC, and only Port1 appears for a single-port NIC.

The default state of each Port PXE Boot option is Enabled if the corresponding PXE Boot option ROM of the same speed is Enabled. If a PXE Boot option ROM for 1 GbE or 10 GbE changes from Disabled to Enabled, then the Port PXE Boot option becomes Enabled for all ports of that speed.

If the PXE Boot option ROM for 1 GbE NICs or 10 GbE NICs is disabled, PXE Boot is disabled and grayed out as unchangeable for all ports on NICs or IO modules of that same speed.

Conversely, if PXE Boot is disabled for all ports of a given speed, the corresponding PXE Option ROM is disabled but not grayed out since it could be selected.

Back to: [NIC Configuration](#) – [PCI Configuration](#) – [Advanced Screen](#) – [Screen map](#)

11. NIC1 Port1 MAC Address**12. NIC 2 Port 1 MAC Address**

Value: <MAC address>

Help text: None

Comments: *Information only.* 12 hex digits of the MAC address of Port1-Port4 of the network controller corresponding to NIC1, NIC2, IOM1, or IOM2.

This display appears only for ports that actually exist on the corresponding network controller. If the network controller or port is disabled, the port MAC Address does not appear.

Back to: [NIC Configuration](#) – [PCI Configuration](#) – [Advanced Screen](#) – [Screen map](#)

3.6.2 UEFI Network Stack

The UEFI Network Stack screen provides access to network devices while executing in the Unified Extensible Firmware Interface (UEFI) boot services environment. This stack follows the UEFI Specification Version 2.3.1.

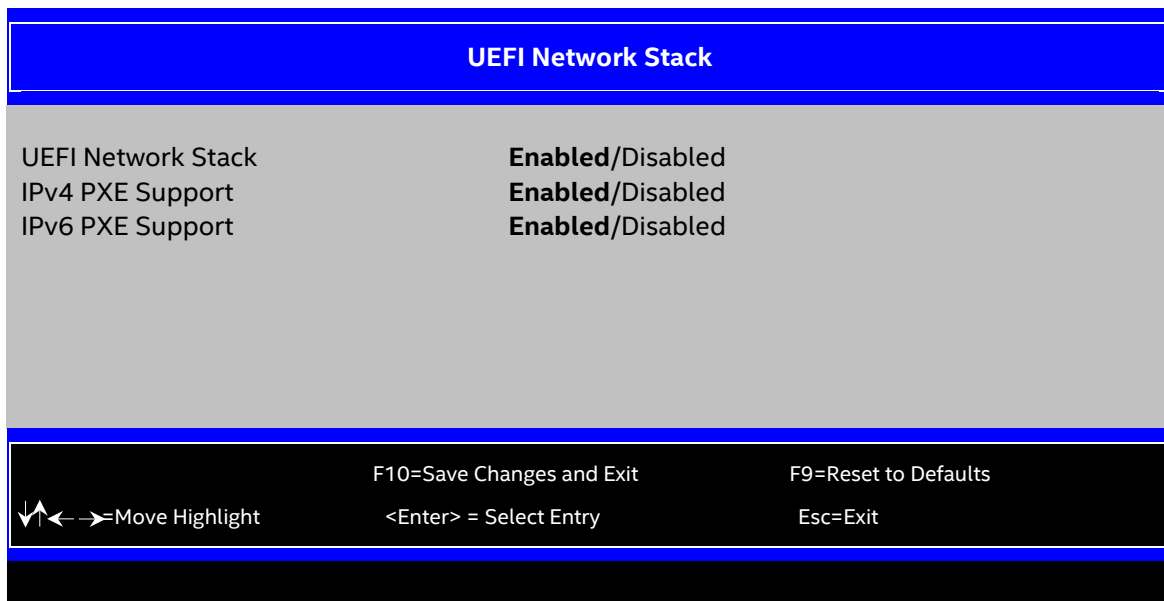


Figure 16. UEFI Network Stack screen

1. UEFI Network StackValue: **Enabled/Disabled**

Help Text: Enable or Disable the whole UEFI Network Stack.

Comments: Disabling the UEFI Network Stack disables the network protocols defined in UEFI Spec v2.3.1.

Back to: [UEFI Network Stack](#) – [PCI Configuration](#) – [Advanced Screen](#) – [Screen map](#)

2. IPv4 PXE Support

Value: **Enabled/Disabled**

Help Text: Enable or Disable IPv4 PXE Support in the UEFI Network Stack.

Comments: This option is not accessible if UEFI Network Stack is disabled. Enabling IPv4 PXE support is required to perform native UEFI PXE functionality.

Back to: [UEFI Network Stack – PCI Configuration – Advanced Screen – Screen map](#)

3. IPv6 PXE Support

Value: **Enabled/Disabled**

Help Text: Enable or Disable IPv6 PXE Support in the UEFI Network Stack.

Comments: This option is not accessible if UEFI Network Stack is disabled. Enabling IPv6 PXE Support is required to perform native UEFI PXE functionality.

Back to: [UEFI Network Stack – PCI Configuration – Advanced Screen – Screen map](#)

3.6.3 UEFI Option ROM Control

The UEFI Option ROM Control configuration screen is brought by the EFI PCI option ROM compliant with the Human Interface Infrastructure (HII) Specification 2.3.1. Those configuration settings are provided by third-party PCI device provider and not controlled directly by the BIOS. The BIOS parses the HII package provided by the EFI PCI Option ROM and groups them with their ClassID into this screen. There are three groups designed for network controller, storage controller, and other controller types.

To identify each option ROM with the physical device's location, the BIOS attaches the SlotID to them. The SlotID is designed based on various products' configuration which covers onboard devices, storage modules, and riser slots. Table 2 defines how to translate the SlotID into the physical address.

Table 2. Slot ID and physical address

HII Name	Expansion	Type	Subtype	Slot
Bit location	12:10	9:8	7:4	3:0
No slots	00 - reserved	0	0	0
Internal slot	00 - reserved	1	0 = Internal slots	0:F = Slot number
External box slots	00 - reserved	1	1:F = External box number	0:F = Possible slots per box
Storage module	00 - reserved	2	1 = Storage module	0:F = Storage module number
Riser slot	00 - reserved	3	0:F = 16 possible risers	0:F = possible slots per riser

Figure 17 is an example for the UEFI Option ROM Control screen. The exact content changes according to the system configuration.

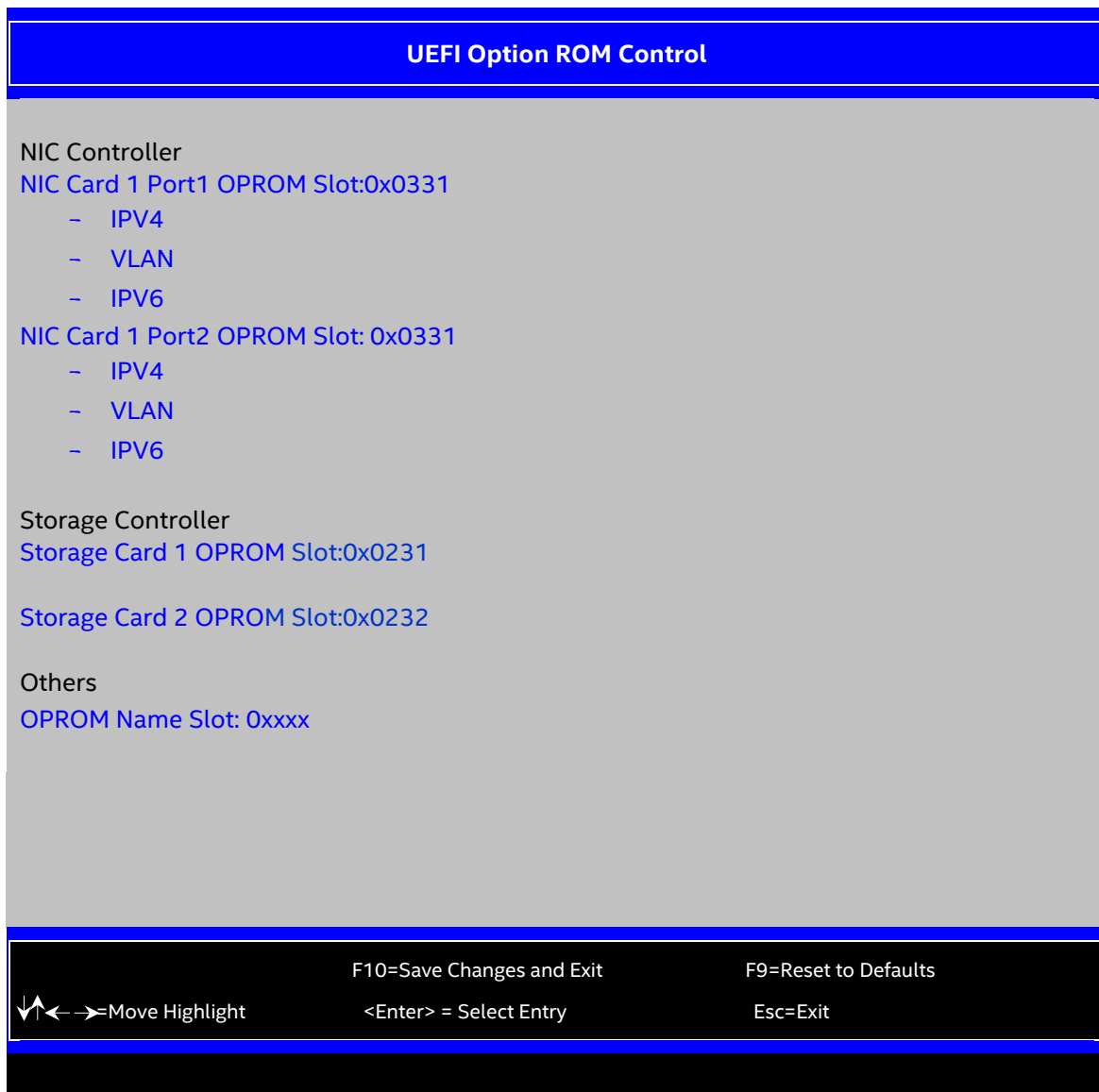


Figure 17. UEFI Option ROM Control screen

Note: This document does NOT describe configuration items brought by EFI PCI option ROMs as their appearance depends on the PCI device vendor, which is out of the baseboard BIOS scope.

3.6.4 PCIe* Port Option ROM Control

The PCIe* Port Option ROM Control screen allows the user to configure the expansion ROM dispatching of the PCIe devices connected to the integrated IO (IIO) PCIe root port during the BIOS POST.

To access this screen from the front page, select **Advanced > PCI Configuration > PCIe Port Oprom Control**. Press the **<Esc>** key to return to the PCI Configuration screen.

The usage for these option is to save the limited memory space for PCIe option ROM. The BIOS currently only supports controlling the PCIe devices off the IIO root ports and the design follows the IIO PCIe Lane Partitioning rules, shown in Figure 18. The IIO supports 36 PCIe lanes and four Direct Media Interface (DMI) lanes. The DMI lanes can also be strapped to operate in PCIe mode, which is displayed as PCIe Port 00. The 36 PCIe lanes are grouped as 1x4 (Port 1) and 2 x16 (Port 2 and Port 3). Port 1 can be configured as 1x4, which is displayed as PCIe Port 1a. Port2 and port3 can each be bifurcated as 2 x8 or 4 x4 or any combination thereof, which is displayed as PCIe Port 2a, 2b, 2c, or 2d and PCIe Port 3a, 3b, 3c, or 3d.

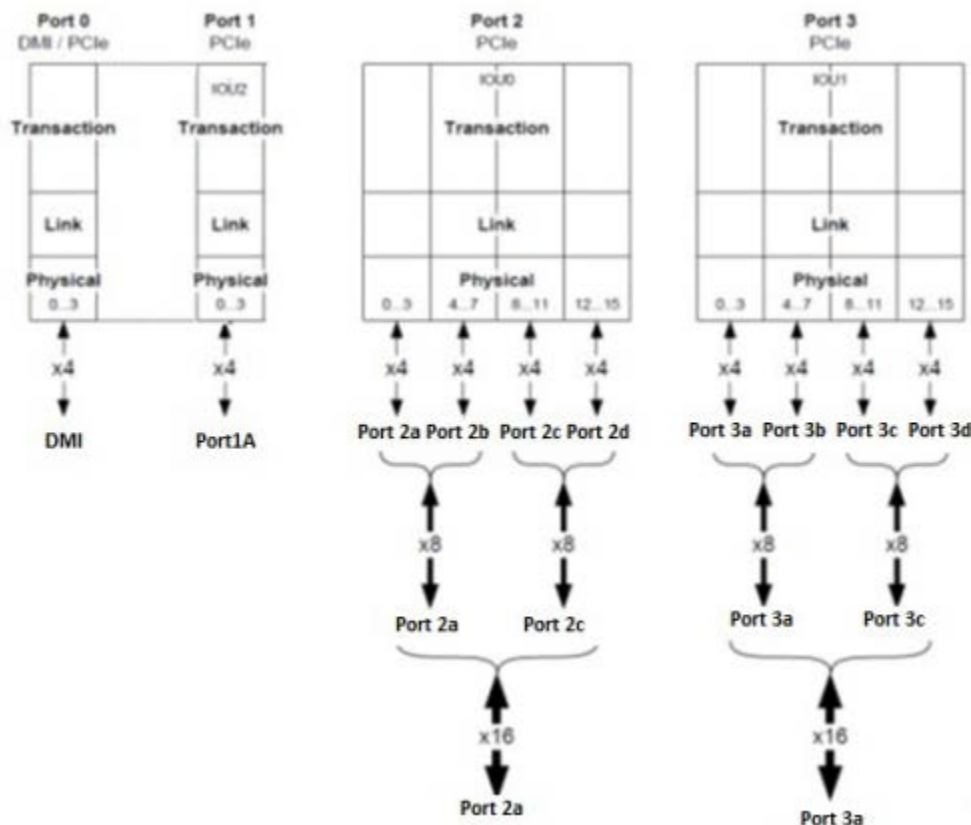


Figure 18. IIO PCIe* lane partitioning

For more information about IIO root ports, refer to section 7.1 in the *Knights Landing Processor BIOS Writer's Guide (BWG) Volume 2*.

Note: If a Knights Landing-F processor installed, the x16 PCIe lanes are routed inside the package directly to the Wolf River Die. IOU0 is synonymous with Port-2, an x16 PCIe Gen3 port; IOU1 is synonymous with Port-3, an x16 PCIe Gen3 port.

For additional information, see the *Knights Landing Processor BIOS Writer's Guide (BWG)*. For additional information about Wolf River, see the *Intel® Omni-Path HFI Silicon 100 Series External Design Specification Rev1.0*.

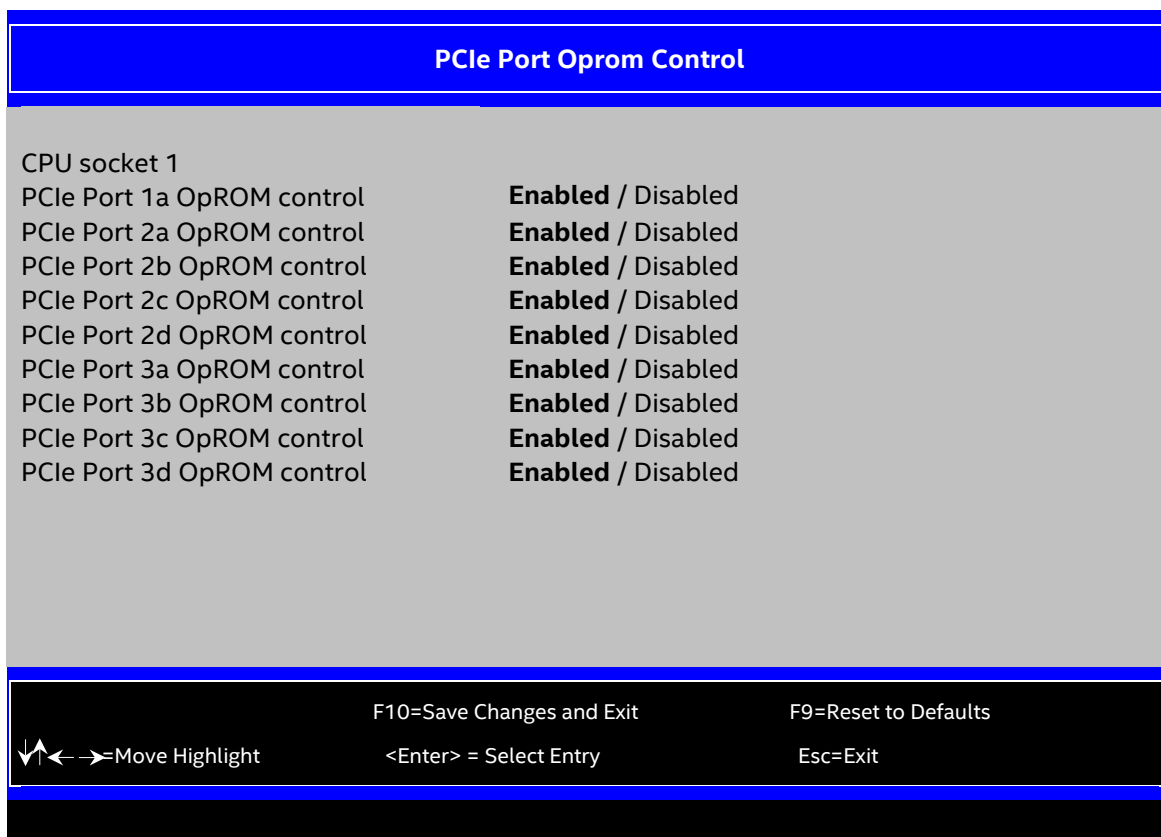


Figure 19. PCIe Port Oprom Control screen

1. PCIe Port 1a/Port 2a/Port 2b/Port 2c/Port 2d/Port 3a/Port 3b/Port 3c/Port 3d OpROM Control

Value: **Enabled/Disabled**

Help Text: Enable or Disable Oprom dispatching of the PCIe Devices on this Root Port.

Comments: Disabling option ROM dispatching of the PCIe* devices on this root port saves the limited memory space for PCIe option ROM.

Back to: [PCIe* Port Oprom Control](#) – [PCI Configuration](#) – [Advanced Screen](#) – [Screen map](#)

3.6.5 Processor PCIe* Link Speed

The Processor PCIe* Link Speed configuration screen allows user to configure the PCIe link speed of the processor IIO PCIe root port and the PCIe devices connected to this port.

To access this screen from the front page, select **Advanced > PCI Configuration > Processor PCIe Link Speed**. Press the <Esc> key to return to the PCI Configuration screen.

The usage for these option is to select the target link speed as Gen1, Gen2, or Gen3 speed. The BIOS currently only supports controlling the PCIe link off the IIO root ports and the design follows the IIO PCIe Lane Partitioning rules, shown in Figure 18. The IIO supports 36 PCIe lanes and four DMI lanes. The DMI lanes can also be strapped to operate in PCIe mode, which is displayed as PCIe Port 00. The 36 PCIe lanes are grouped as 1x4 (Port 1) and 2x16 (Port 2 and Port 3). Port 1 can be configured as 1 x4, which is displayed as PCIe Port 1a. Port 2 and Port 3 can each be bifurcated as 2x8 or 4x4 or any combination thereof, which is displayed as PCIe Ports 2a, 2b, 2c or 2d and PCIe Ports 3a, 3b, 3c, or 3d.

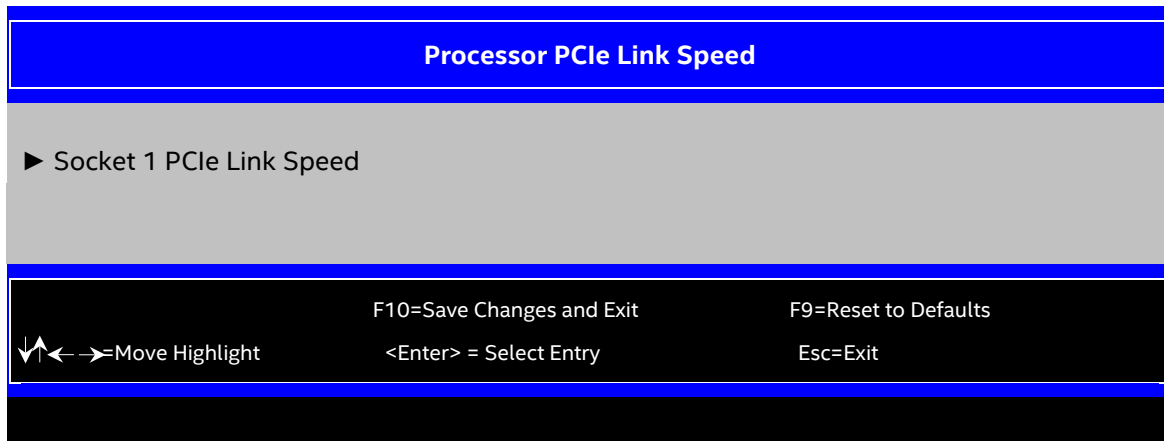


Figure 20. Processor PCIe Link Speed screen

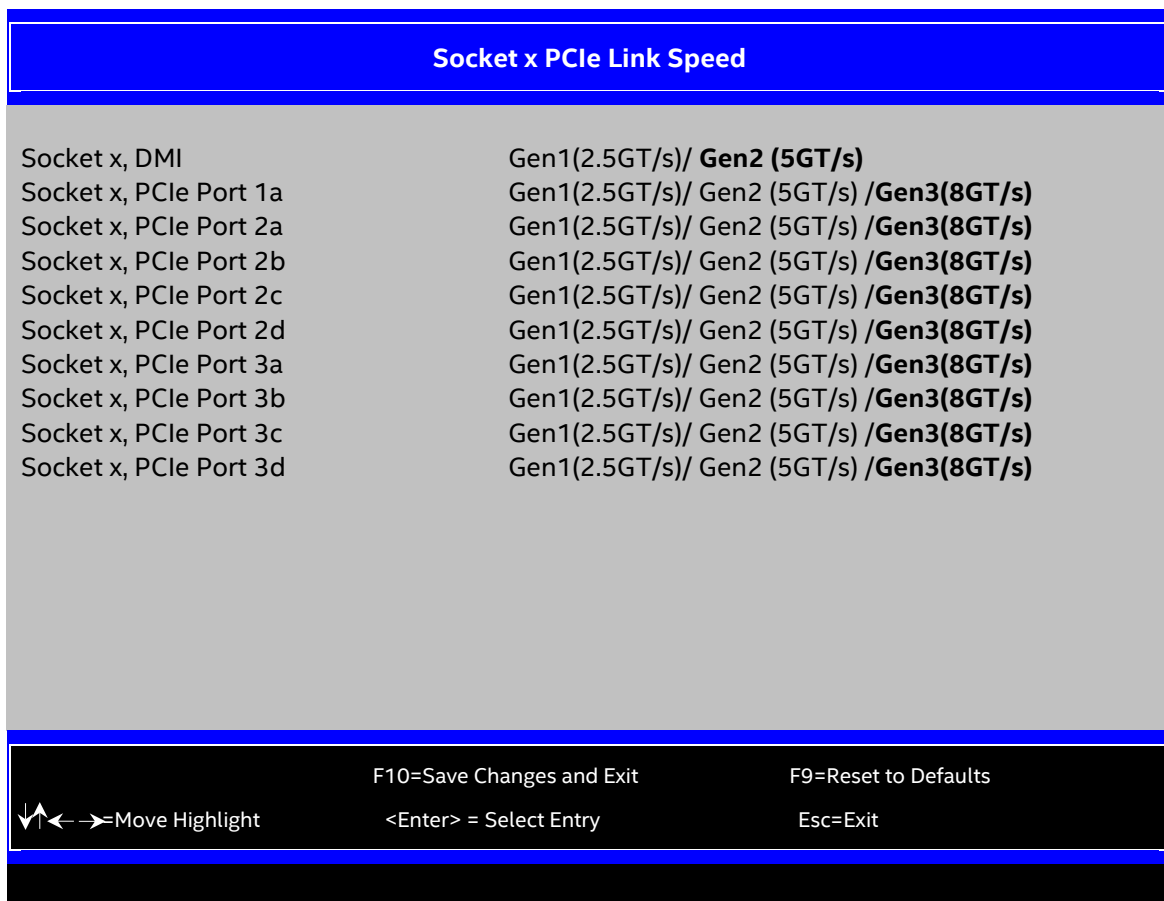


Figure 21. Processor Socket x PCIe Link Speed screen

1. Socket x, DMI

Value: Gen2 (5GT/s)/**Gen1 (2.5GT/s)**

Help Text: Allow for selecting target PCIe Link Speed as Gen1 or Gen2.

Comments: DMI port only support Gen1 and Gen2 speed. This options are only available when there is corresponding PCIe slot implemented on the specific board.

Back to: [Processor PCIe* Link Speed – PCI Configuration – Advanced Screen – Screen map](#)

2. Socket x, PCIe Port 1a
3. Socket x, PCIe Port 2a
4. Socket x, PCIe Port 2b
5. Socket x, PCIe Port 2c
6. Socket x, PCIe Port 2d
7. Socket x, PCIe Port 3a
8. Socket x, PCIe Port 3b
9. Socket x, PCIe Port 3c
10. Socket x, PCIe Port 3d

Value: **Gen3 (8GT/s)/Gen2 (5GT/s)/Gen1 (2.5GT/s)**

Help Text: Allow for selecting target PCIe Link Speed as Gen1, Gen2 or Gen3.

Comments: PCIe port support Gen1, Gen2 and Gen3 speed. Those options for PCIe ports are only available when there is corresponding PCIe slot implemented on the specific board.

Back to: [Processor PCIe* Link Speed](#) – [PCI Configuration](#) – [Advanced Screen](#) – [Screen map](#)

3.7 Serial Port Configuration

The Serial Port Configuration screen allows the user to configure the Serial A port. In legacy Industry Standard Architecture (ISA) nomenclature, these are ports COM1 and COM2, respectively.

To access this screen from the front page, select **Advanced > Serial Port Configuration**. Press the <Esc> key to return to the Advanced screen.

The primary usage for these serial ports is to enable serial console redirection and serial over LAN (SOL) capabilities. For more information on console redirection, see section 5.1.

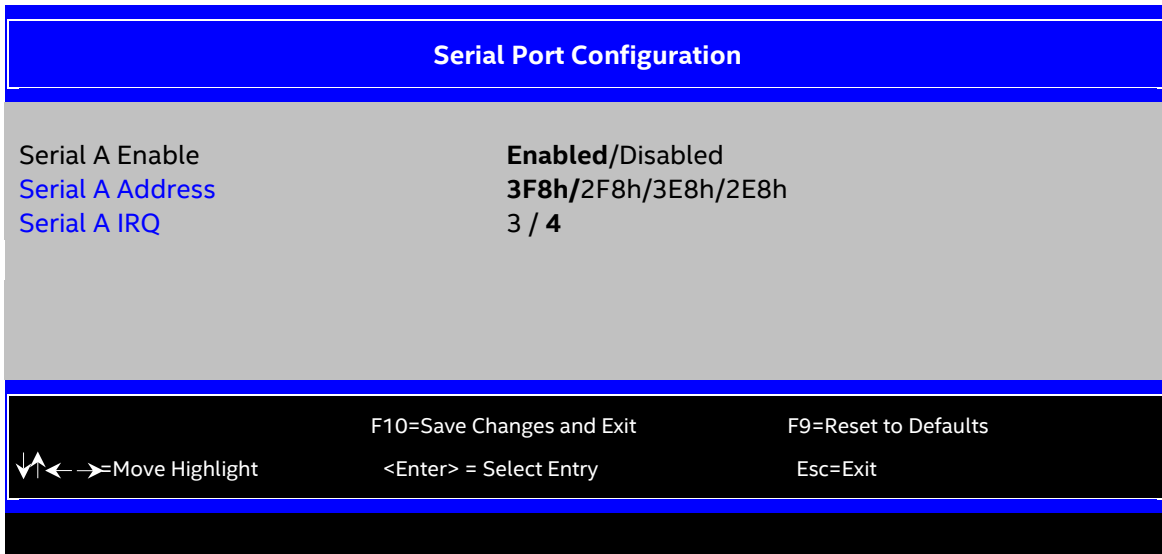


Figure 22. Serial Port Configuration screen

1. Serial A Enable

Value: **Enabled/Disabled**

Help Text: Enable or Disable Serial port A.

Comments: Serial port A can be used for either Serial Over LAN or Serial Console Redirection.

Back to: [Serial Port Configuration– Advanced Screen – Screen map](#)

2. Serial A Address

Value: **3F8h/2F8h/3E8h/2E8h**

Help Text: Select Serial port A base I/O address.

Comments: Legacy I/O port address. This field does not appear when Serial A port enable/disable does not appear.

Back to: [Serial Port Configuration– Advanced Screen – Screen map](#)

3. Serial A IRQ

Value: **3/4**

Help Text: Select Serial port A interrupt request (IRQ) line.

Comments: Legacy interrupt request (IRQ). This field does not appear when Serial A port enable/disable does not appear.

Back to: [Serial Port Configuration– Advanced Screen – Screen map](#)

3.8 USB Configuration

The USB Configuration screen allows the user to configure the available USB controller options.

To access this screen from the front page, select **Advanced > USB Configuration**. Press the **<Esc>** key to return to the Advanced screen.

This screen displays all USB mass storage devices which have been detected in the system. These include USB-attached hard disk drives (HDDs), floppy disk drives (FDDs), CDROM and DVDROM drives, and USB flash memory devices (such as a USB key or key fob).

Each USB mass storage device may be set to allow the media emulation for which it is formatted, or an emulation may be specified. For USB flash memory devices in particular, there are some restrictions:

- A USB key formatted as a CDROM drive is recognized as an HDD.
- A USB key formatted without a partition table is forced to FDD emulation.
- A USB key formatted with one partition table and less than 528 MB in size is forced to FDD emulation; otherwise, if it is 528 MB or greater in size, it is forced to HDD emulation.

Note: USB devices can be hot plugged during POST, and are detected, enumerated, and work under OS environment. They are NOT displayed on this screen or enumerated as bootable devices.

USB Configuration	
Detected USB Devices	
<Number of USB devices detected in system>	
USB Controller	Enabled/Disabled
USB 3.0 Controller	Enabled/Disabled/Auto
Legacy USB Support	Enabled/Disabled/Auto
Port 60/64 Emulation	Enabled/Disabled
Make USB Devices Non-Bootable	Enabled/Disabled
USB Mass Storage Device Configuration	
Device Reset Timeout	10 seconds/ 20 seconds /30 seconds/40 seconds
Mass Storage Devices:	
<One device per line>	Auto /Floppy/Forced FDD/Hard Disk/CD-ROM
<div> <div> ↓↑←→ Move Highlight </div> <div> F10=Save Changes and Exit <Enter> = Select Entry </div> <div> F9=Reset to Defaults Esc=Exit </div> </div>	

Figure 23. USB Configuration screen

1. Detected USB Devices

Value: <Number of USB devices detected in system>

Help Text: None

Comments: *Information only.* Displays the total number of USB devices of all types which have been detected in POST.

Note: There is one USB keyboard and one USB mice detected from the BMC KVM function under this item even if no USB devices are connected to the system.

Back to: [USB Configuration– Advanced Screen – Screen map](#)

2. USB Controller

Value: **Enabled/Disabled**

Help Text: [Enabled] – All on-board USB controllers are turned on and accessible by the OS.

[Disabled] – All on-board USB controllers are turned off and inaccessible by the OS.

Comments: When the USB controllers are disabled, there is no USB IO available for either POST or the OS. In that case, all following fields on this screen are grayed out and inactive.

Back to: [USB Configuration– Advanced Screen – Screen map](#)

3. USB 3.0 Controller

Value: **Auto/Enabled/Disabled**

Help Text: Auto – USB 3.0 port always boots with USB 2.0 controller in BIOS POST and only switches to USB 3.0 after OS USB 3.0 driver is loaded.

Disabled – Hide XHCI.

Enabled – During the first boot, USB 3.0 port starts with USB 2.0 controller in BIOS POST; if OS driver USB 3.0 is loaded, it switches to XHCI and continues using as USB 3.0 speed during BIOS POST when next boot.

Comments: None

Back to: [USB Configuration– Advanced Screen – Screen map](#)

4. Legacy USB Support

Value: **Auto/Enabled/Disabled**

Help Text: Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. Disable option will only keep USB Keyboard devices available for EFI applications.

Comments: When Legacy USB Support is disabled, USB devices are available only through OS drivers. If the USB controller setting is disabled, this field is grayed out and inactive.

Back to: [USB Configuration– Advanced Screen – Screen map](#)

5. Port 60/64 Emulation

Value: **Enabled/Disabled**

Help Text: Enables I/O port 60h/64h emulation support.
This may be needed for legacy USB keyboard support when using an OS that is USB unaware.

Comments: If the USB controller setting is disabled, this field is grayed out and inactive.

Back to: [USB Configuration](#)– [Advanced Screen](#) – [Screen map](#)

6. Make USB Devices Non-Bootable

Value: **Enabled/Disabled**

Help Text: Exclude USB in Boot Table.
[Enabled] – This will remove all USB Mass Storage devices as Boot options.
[Disabled] – This will allow all USB Mass Storage devices as Boot options.

Comments: This is a security option. When Disabled, the system cannot be booted directly to a USB device of any kind. USB Mass Storage devices may still be used for data storage.
If the USB controller setting is disabled, this field is grayed out and inactive.

Back to: [USB Configuration](#)– [Advanced Screen](#) – [Screen map](#)

7. Device Reset Timeout

Value: 10 seconds/**20 seconds**/30 seconds/40 seconds

Help Text: USB Mass Storage device Start Unit command timeout.
Setting to a larger value provides more time for a mass storage device to be ready, if needed.

Comments: If the USB controller setting is disabled, this field is grayed out and inactive.

Back to: [USB Configuration](#)– [Advanced Screen](#) – [Screen map](#)

8. Mass Storage Devices

Value: **Auto**/Floppy/Forced FDD/Hard Disk/CD-ROM

Help Text: [Auto] – USB devices less than 530 MB are emulated as floppies.
[Forced FDD] – HDD formatted drive is emulated as an FDD (e.g., ZIP drive).

Comments: This field is hidden if no USB mass storage devices are detected.
This setup screen can show a maximum of 16 USB mass storage devices on the screen. If more than 16 devices are installed in the system, the USB Devices Enabled field displays the correct count but only the first 16 devices discovered are displayed in this list.
If the USB controller setting is disabled, this field is grayed out and inactive.

Back to: [USB Configuration](#)– [Advanced Screen](#) – [Screen map](#)

3.9 System Acoustic and Performance Configuration

The System Acoustic and Performance Configuration screen allows the user to configure the thermal control behavior of the system with respect to the parameters used in the system's fan speed control algorithms.

To access this screen from the front page, select **Advanced > System Acoustic and Performance Configuration**. Press the **<Esc>** key to return to the Advanced screen.

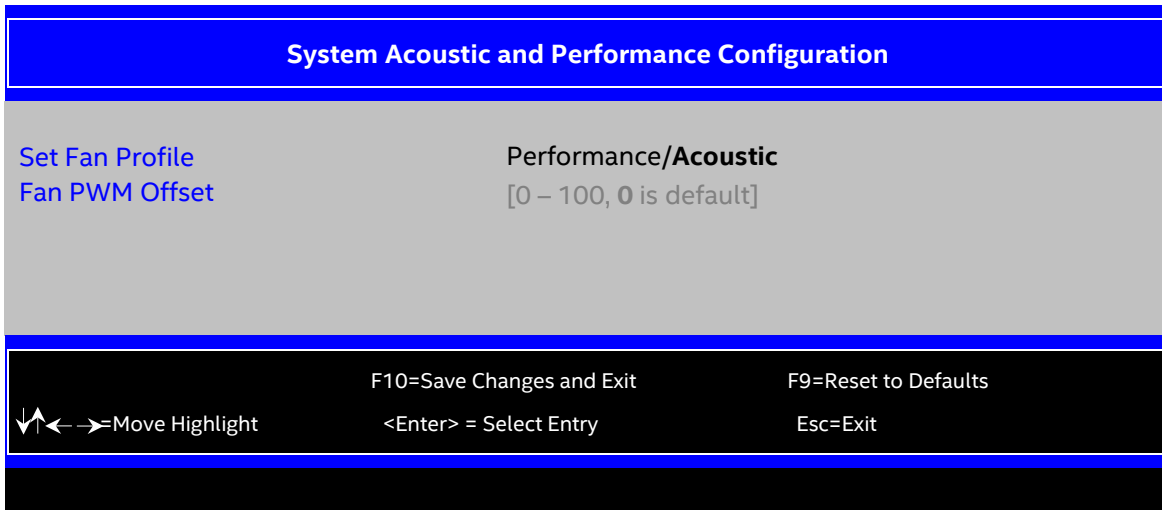


Figure 24. System Acoustic and Performance Configuration screen

1. Set Fan Profile

Value: **Performance/Acoustic**

Help Text: [Performance] – Fan control provides primary system cooling before attempting to throttle memory.
[Acoustic] – The system will favor using throttling of memory over boosting fans to cool the system if thermal thresholds are met.

Comments: This option allows the user to choose a fan profile that is optimized for maximizing performance or for minimizing acoustic noise.

When Performance is selected, the system thermal conditions are controlled by raising fan speeds when necessary. This provides cooling without impacting system performance but may impact system acoustic performance as fans running faster are typically louder.

When Acoustic is selected, the system attempts first to control thermal conditions by throttling memory to reduce heat production. This regulates the system's thermal condition without changing the acoustic performance, but throttling memory may impact system performance.

Back to: [System Acoustic and Performance Configuration– Advanced Screen – Screen map](#)

2. Fan PWM Offset

Value: [Entry Field 0-100, **0 is default**]

Help Text: Valid Offset 0-100. This number is added to the calculated PWM value to increase Fan Speed.

Comments: This is a percentage by which the calculated fan speed is increased. The user can apply a positive offset that results in increasing the minimum fan speeds.

Back to: [System Acoustic and Performance Configuration– Advanced Screen – Screen map](#)

4. Security Screen

The Security screen allows the user to enable and set the administrator and user passwords and to lock out the front panel buttons so they cannot be used. This screen also allows the user to enable and activate the Trusted Platform Module (TPM) security settings on those boards that support TPM.

This BIOS supports (but does not require) strong passwords for security. The strong password criteria for both administrator and user passwords require that passwords be between 8 and 14 characters in length, and a password must contain at least one case-sensitive alphabetic character, one numeric character, and one special character. A warning is given when a password is set which does not meet the strong password criteria but the password is accepted.

For further security, the BIOS optionally may require a power on password to be entered in early POST in order to boot the system. When the Power On Password option is enabled, POST is halted soon after power-on while the BIOS queries for a power on password. Either the administrator or the user password may be entered for a power on password.





Security	
Administrator Password Status	<Installed/Not Installed>
User Password Status	<Installed/Not Installed>
Set Administrator Password	[123aBcDeFgH\$#@]
Set User Password	[123aBcDeFgH\$#@]
Power On Password	Enabled/ Disabled
Front Panel Lockout	Enabled/ Disabled
Current TPM Device	<TPM1.2/TPM2.0>
TPM State	<Current TPM device state>
(This option is only for TPM1.2)	
TPM Administrative Control	No Operation /Turn On/Turn Off/Clear Ownership
(This option is only for TPM1.2)	
TPM2 Physical Presence Operation(This string is only for TPM2.0)	
TPM2 Operation(This option is only for TPM2.0)	No Action / TPM2 ClearControl(NO) + Clear
<div> <div>     Move Highlight </div> <div> F10=Save Changes and Exit <Enter> = Select Entry </div> <div> F9=Reset to Defaults Esc=Exit </div> </div>	

Figure 25. Security screen

1. Administrator Password Status

Value: <Installed/Not Installed>

Help Text: None

Comments: *Information only.* Indicates the status of the administrator password.

Back to: [Security Screen](#)– [Screen map](#)

2. User Password Status

Value: <Installed/Not Installed>

Help Text: None

Comments: *Information only.* Indicates the status of the user password.

Back to: [Security Screen](#)– [Screen map](#)

3. Set Administrator Password

Value: [Entry Field – 0-14 characters]

Help Text: Administrator password is used if Power On Password is enabled and to control change access in BIOS Setup. Length is 1-14 characters. Case sensitive alphabetic, numeric, and special characters !@#\$\$%^&*()-_+=? are allowed.

Note: Administrator password must be set in order to use the User account.

Comments: This password controls change access to setup. The administrator has full access to change settings for any setup options, including setting the administrator and user passwords.

When Power On Password protection is enabled, the administrator password may be used to allow the BIOS to complete POST and boot the system.

Deleting all characters in the password entry field removes a password previously set. Clearing the administrator password also clears the user password.

If invalid characters are present in the entered password, it is not accepted and there is a popup error message:

Password entered is not valid. Only case sensitive alphabetic, numeric and special characters !@#\$\$%^&*()-_+=? are allowed.

The administrator and user passwords must be different. If the password entered is the same as the user password, it is not accepted and there is a popup error message:

Password entered is not valid. Administrator and User passwords must be different.

Strong passwords are encouraged, although not mandatory. If a password is entered which does not meet the strong password criteria, there is a popup warning message:

Warning – a Strong Password should include at least one each case sensitive alphabetic, numeric, and special character. Length should be 8 to 14 characters.

For full details on BIOS password protection, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 9.1.

Back to: [Security Screen](#)– [Screen map](#)

4. Set User Password

Value: [Entry Field – 0-14 characters]

Help Text: User password is used if Power On Password is enabled and to allow restricted access to BIOS Setup. Length is 1-14 characters. Case sensitive alphabetic, numeric, and special characters !@#\$%^&*()-_+=? are allowed.

Note: Removing the administrator password also removes the user password.

Comments: The user password is available only if the administrator password has been installed. This option protects setup settings as well as boot choices. The user password only allows limited access to the setup options, and no choice of boot devices.

When Power On Password protection is enabled, the user password may be used to allow the BIOS to complete POST and boot the system.

The password format and entry rules and popup error and warning message are the same for the user password as for the administrator password (see previous field description number 3).

For full details of BIOS password protection, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 9.1.

Back to: [Security Screen– Screen map](#)

5. Power On Password

Value: Enabled/**Disabled**

Help Text: Enable Power On Password support. If enabled, password entry is required in order to boot the system.

Comments: When Power On Password security is enabled, the system halts soon after power-on and the BIOS asks for a password before continuing POST and booting. Either the administrator or user password may be used.

If an administrator password has not been set, this option is grayed out and unavailable. Removing the administrator password also disables this option.

Back to: [Security Screen– Screen map](#)

6. Front Panel Lockout

Value: Enabled/**Disabled**

Help Text: If enabled, locks the power button OFF function and the reset and NMI Diagnostic Interrupt buttons on the system's front panel. If [Enabled] is selected, power-off and reset must be controlled via a system management interface, and the NMI Diagnostic Interrupt is not available.

Comments: None

Back to: [Security Screen– Screen map](#)

7. Current TPM Device

Value: <TPM1.2/TPM2.0>

Help Text: None

Comments: *Information only.* Shows the current TPM version – 1.2 or 2.0.

Back to: [Security Screen](#)– [Screen map](#)

8. TPM State

Value: <Current TPM device state>

Help Text: None

Comments: *Information only.* Shows the current TPM device state. The possible states are:

- Enabled & Activated
- Enabled & Deactivated
- Disabled & Activated
- Disabled & Deactivated

A disabled TPM device does not execute commands that use the TPM functions and TPM security operations are not available.

An enabled and deactivated TPM is in the same state as a disabled TPM, except that setting of the TPM ownership is allowed if it is not present already.

An enabled and activated TPM executes all commands that use the TPM functions and TPM security operations are also available.

For information about TPM support, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 9.2.

Note: This option appears only on boards equipped with a TPM. Refer to *Intel® Server Board S7200AP Family BIOS EPS* section 11 for product specific information on TPM availability.

Back to: [Security Screen](#)– [Screen map](#)

9. TPM Administrative Control

Value: **No Operation**/Turn On/Turn Off/Clear Ownership

Help Text: [No Operation] – No changes to current state.
 [Turn On] – Enables and activates TPM.
 [Turn Off] – Disables and deactivates TPM.
 [Clear Ownership] – Removes TPM ownership & returns TPM to factory default state.

Note: Setting returns to [No Operation] on every boot.

Comments: Any administrative control operation selected requires the system to perform a hard reset to become effective. For information about TPM support, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 9.2.

Note: This option appears only on boards equipped with a TPM. Refer to *Intel® Server Board S7200AP Family BIOS EPS* section 11 for product specific information on TPM availability.

Back to: [Security Screen](#)– [Screen map](#)

10. TPM2 Operation

Value: **No Action**/TPM2 ClearControl(NO) + Clear

Help Text: Select one of the supported operation to change TPM2 state.

Comments: Any TPM2 operation selected requires the system to perform a hard reset to become effective. For information about TPM support, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 9.2.

Note: This option appears only on boards equipped with a TPM. Refer to *Intel® Server Board S7200AP Family BIOS EPS* section 11 for product specific information on TPM availability.

Back to: [Security Screen– Screen map](#)

5. Server Management Screen

The Server Management screen allows the user to configure several server management features. This screen also provides an access point to the screens for configuring console redirection, displaying system information, and controlling the BMC LAN configuration.

Note: The fields on the Server Management screen cannot support **SysCfg** changes with the `/bcs` command and cannot support Intel® Integrator Toolkit customization.

Server Management	
Assert NMI on SERR	Enabled / Disabled
Assert NMI on PERR	Enabled / Disabled
PCIe AER Support	Enabled / Disabled
Log Correctable Errors	Enabled / Disabled
WHEA Support	Enabled / Disabled
Reset on CATERR	Enabled / Disabled
Reset on ERR2	Enabled / Disabled
Resume on AC Power Loss	Stay Off / Last State / Power On
Power Restore Delay	Disabled / Auto / Fixed
Power Restore Delay Value	[55 – 300s, 55 is default]
Clear System Event Log	
FRB-2 Enable	Enabled / Disabled
OS Boot Watchdog Timer	Enabled / Disabled
OS Boot Watchdog Timer Policy	Power off / Reset
OS Boot Watchdog Timer Timeout	5 minutes / 10 minutes / 15 minutes / 20 minutes
Plug & Play BMC Detection	Enabled / Disabled
Shutdown Policy	Enabled / Disabled
▶ Console Redirection	
▶ System Information	
▶ BMC LAN Configuration	
<div> <div> Move Highlight </div> <div> F10=Save Changes and Exit <Enter> = Select Entry </div> <div> F9=Reset to Defaults Esc=Exit </div> </div>	

Figure 26. Server Management screen

1. Assert NMI on SERR

Value: **Enabled/Disabled**

Help Text: On SERR, generate an NMI and log an error.

Note: [Enabled] must be selected for the Assert NMI on PERR setup option to be visible.

Comments: This option allows the system to generate a non-maskable interrupt (NMI) when a system error (SERR) occurs, which is a method legacy operating system error handlers may use instead of processing a machine check.

Back to: [Server Management Screen– Screen map](#)

2. Assert NMI on PERR

Value: **Enabled/Disabled**

Help Text: On PERR, generate an NMI and log an error.

Note: This option is only active if the Assert NMI on SERR option has [Enabled] selected.

Comments: This option allows the system to generate an NMI when a parity error (PERR) occurs, which is a method legacy operating system error handlers may use instead of processing a machine check.

Back to: [Server Management Screen– Screen map](#)

3. PCIe AER Support

Value: **Enabled/Disabled**

Help Text: [Enabled] – PCIe AER (Advanced Error Reporting) is enabled.
[Disabled] – PCIe AER is disabled. All PCIe AER errors will be masked once PCIe AER is disabled.

Comments: This option allows the system to monitor and handle PCIe* advanced error reporting (AER) errors on PCIe devices with PCIe AER support. Note that, as described in PCI Express Base Specification, any third-party software or OS could override this BIOS policy and take ownership of PCIe AER handling after BIOS POST.

Back to: [Server Management Screen– Screen map](#)

4. Log Correctable Errors

Value: **Enabled/Disabled**

Help Text: [Enabled] – Processor & PCH PCIe correctable error logging is enabled.
[Disabled]– Processor & PCH PCIe correctable error logging is disabled.

Comments: This option allows the system to monitor and handle PCIe correctable errors on PCIe devices behind processor and platform controller hub (PCH). This option is only available when the PCIe AER Support option is enabled.

Back to: [Server Management Screen– Screen map](#)

5. WHEA Support

Value: **Enabled/Disabled**

Help Text: [Enabled] - WHEA (Windows Hardware Error Architecture) is enabled.
[Disabled] -WHEA is disabled.

Comments: This option allows enabling or disabling of Windows* Hardware Error Architecture (WHEA).

Back to: [Server Management Screen– Screen map](#)

6. Reset on CATERR

Value: **Enabled/Disabled**

Help Text: When enabled system gets reset upon encountering Catastrophic Error (CATERR); when disabled system does not get reset on CATERR.

Comments: This option controls whether the system is reset when the catastrophic error CATERR# signal is held asserted, rather than just pulsed to generate a system management interrupt (SMI). This indicates that the processor has encountered a fatal hardware error.

Note: If this option is disabled, this can result in a system hang for certain error conditions, possibly with the system unable to update the system status LED or log an error to the SEL before hanging.

Back to: [Server Management Screen– Screen map](#)

7. Reset on ERR2

Value: **Enabled/Disabled**

Help Text: When enabled system gets reset upon encountering ERR2 (Fatal error); when disabled system does not get reset on ERR2.

Comments: This option controls whether the system is reset if the BMC's ERR2 monitor times out meaning that the ERR2 signal has been continuously asserted long enough to indicate that the SMI handler is not able to service the condition.

Note: If this option is disabled, this can result in a system hang for certain error conditions, possibly with the system unable to update the system status LED or log an error to the SEL before hanging.

Back to: [Server Management Screen– Screen map](#)

8. Resume on AC Power Loss

Value: **Stay Off/Last State/Power On**

Help Text: System action to take on AC power loss recovery.
[Stay Off] - System stays off.
[Last State] - System returns to the same state before the AC power loss.
[Power On] - System powers on.

Comments: This option controls the policy that the BMC follows when AC power is restored after an unexpected power outage. The BMC either holds DC power-off or always turns it on to boot the system, depending on this setting. If this option is set to Last State, the behavior depends on whether the power was on and the system was running before the AC power went off.

When this setting is changed in setup, the new setting is sent to the BMC. However, the BMC maintains (owns) this power restore policy setting, and it can be changed independently with an intelligent platform management interface (IPMI) command to the BMC. The BIOS gets this setting from the BMC early in POST, and also for the Setup Server Management screen.

Note: The system automatically powers on after doing a CMOS clear when AC is applied because this option does not take effect in this situation.

Back to: [Server Management Screen– Screen map](#)

9. Power Restore Delay

Value: **Disabled/Auto/Fixed**

Help Text: Allows a delay in powering up after a power failure, to reduce peak power requirements. The delay can be fixed or automatic between 55-300 seconds.

Comments: When the AC power resume policy (see previous field description number 8) is either Power On or Last State, this option allows a delay to be taken after AC power is restored before the system actually begins to power up. This delay can be either a fixed time or an automatic time meaning that the BIOS selects a randomized delay time of 55-300 seconds when it sends the Power Restore Delay setting to the BMC.

The purpose of this delay is to avoid having all systems draw startup surge power at the same time. Different systems or racks of systems can be set to different delay times to spread out the startup power draws. Alternatively, all systems can be set to Automatic and then each system waits for a random period before powering up.

This option is grayed out and unavailable when the AC power resume policy is Stay Off.

The Power Restore Delay setting is maintained by the BIOS. This setting does not take effect until a reboot is done. Early in POST, the Power Restore Policy is read from the BMC, and if the policy is Power On or Last State, the delay settings are sent to the BMC.

Note that even if the Power Restore Delay setting is disabled, there is still a delay of about 50 seconds while the BMC itself boots up after AC power is restored.

Note: This option applies only to powering on when AC is applied. It has no effect on powering the system up using the power button on the front panel. A DC power-on using the power button is not delayed.

For additional information about BIOS/BMC power control, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 7.1.3.

Back to: [Server Management Screen– Screen map](#)

10. Power Restore Delay Value

Value: [Entry Field 55-300, **55 is default**]

Help Text: Fixed time period 55-300 seconds for Power Restore Delay.

Comments: When the power restore policy is Power On or Last State, and the Power Restore Delay option is set to Fixed, this field specifies the length of the fixed delay in seconds.

When the Power Restore Delay option is set to Disabled or Auto, this field is grayed out and unavailable.

The Power Restore Delay Value setting is maintained by the BIOS. This setting does not take effect until a reboot is done. Early in POST, the power restore policy is read from the BMC and, if the policy is Power On or Last State, the delay settings are sent to the BMC. When the Power Restore Delay setting is Fixed, this delay value is used to provide the length of the delay.

Back to: [Server Management Screen– Screen map](#)

11. Clear System Event Log

Value: None

Help Text: Clears the System Event Log if selected. All current entries in SEL will be lost.

Note: This option will take effect immediately without reboot.

Comments: *Selection only.* This option sends a message to the BMC to request it to clear the system event log (SEL). The log is cleared, and then the clear action itself is logged as an event. This gives the user a time/date when the log was cleared.

After selected, a confirmation pop-up appears. If the Clear System Event Log action is positively confirmed, the BIOS sends a message to the BMC to request it to clear the SEL.

If the Clear System Event Log action is not confirmed, the BIOS resumes executing setup.

Back to: [Server Management Screen– Screen map](#)

12. FRB-2 Enable

Value: **Enabled/Disabled**

Help Text: Fault Resilient Boot (FRB).

The BIOS programs the BMC watchdog timer for approximately 6 minutes. If the BIOS does not complete POST before the timer expires, the BMC will reset the system.

Comments: This option controls whether the system is reset if the BMC watchdog timer detects what appears to be a hang during POST. When the BMC watchdog timer is purposed as a fault resistant booting level 2 (FRB-2) timer, it is initially set to allow six minutes for POST to complete.

However, the FRB-2 timer is suspended during times when some lengthy operations are in progress, like executing option ROMs, during setup, and when the BIOS is waiting for a password or for an input to the BBS Boot Menu. The FRB-2 timer is also suspended while POST is paused with the **<Pause>** key.

For more information on FRB-2 timer operation, refer to *Intel® Server Board S7200AP Family BIOS EPS* sections 3.16.4, 6.1.1.1, and 10.5.1.1.

Back to: [Server Management Screen– Screen map](#)

13. OS Boot Watchdog Timer

Value: **Enabled/Disabled**

Help Text: The BIOS programs the watchdog timer with the timeout value selected. If the OS does not complete booting before the timer expires, the BMC will reset the system and an error will be logged.

Requires OS support or Intel Management Software Support.

Comments: This option controls whether the system sets the BMC watchdog to detect an apparent hang during OS boot. The BIOS sets the timer before starting the OS bootstrap load procedure. If the OS boot watchdog timer times out, then presumably the OS failed to boot properly.

If the OS does boot up successfully, it must be aware of the OS boot watchdog timer and immediately turn it off before it expires. The OS may turn off the timer or, more often, the timer may be repurposed as an OS watchdog timer to protect against runtime OS hangs.

Unless the OS does have timer-aware software to support the OS boot watchdog timer, the system is unable to boot successfully with the OS boot watchdog timer enabled. When the timer expires without having been reset or turned off, the system either resets or powers off repeatedly.

For more information about the FRB-2 timer operation, refer to *Intel® Server Board S7200AP Family BIOS EPS* sections 3.16.4, 6.1.1.2, and 10.5.1.2.

Back to: [Server Management Screen– Screen map](#)

14. OS Boot Watchdog Timer Policy

Value: **Power off/Reset**

Help Text: If the OS watchdog timer is enabled, this is the system action taken if the watchdog timer expires.

[Reset] – System performs a reset.

[Power Off] – System powers off.

Comments: This option is grayed out and unavailable when the OS Boot Watchdog Timer is disabled.

Back to: [Server Management Screen– Screen map](#)

15. OS Boot Watchdog Timer Timeout

Value: 5 minutes/**10 minutes**/15 minutes/20 minutes

Help Text: If the OS watchdog timer is enabled, this is the timeout value the BIOS will use to configure the watchdog timer.

Comments: This option is grayed out and unavailable when the OS Boot Watchdog Timer is disabled.

Back to: [Server Management Screen– Screen map](#)

16. Plug & Play BMC Detection

Value: Enabled/**Disabled**

Help Text: If enabled, the BMC will be detectable by OSes which support plug and play loading of an IPMI driver. Do not enable this option if your OS does not support this driver.

Comments: This option controls whether the OS server management software is able to find the BMC and automatically load the correct IPMI support software for it. If the OS does not support plug and play for the BMC, the correct IPMI driver software is not loaded.

Back to: [Server Management Screen– Screen map](#)

17. Shutdown Policy

Value: Enabled/**Disabled**

Help Text: Enable/Disable Shutdown Policy.

Comments: This option is designed for multiple-node systems and to control the policy that the BMC should shut down one node if it detects over-current or over-temperature condition. The BIOS and the BMC synchronize the policy during the BIOS POST and the current value of the BMC is displayed in BIOS setup.

This option is only displayed when the BMC supports this feature on the node. For details on which platforms do support it, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 11 and the BMC firmware EPS.

Back to: [Server Management Screen– Screen map](#)

18. Console Redirection

Value: None

Help Text: View/Configure Console Redirection information and settings.

Comments: *Selection only.* For more information on Console Redirection settings, see section 5.1.

Back to: [Server Management Screen– Screen map](#)

19. System Information

Value: None

Help Text: View System Information.

Comments: *Selection only.* For more information on System Information settings, see section 5.2.

Back to: [Server Management Screen– Screen map](#)

20. BMC LAN Configuration

Value: None

Help Text: View/Configure BMC LAN and user settings.

Comments: *Selection only.* For more information on BMC LAN Configuration settings, see section 5.3.

Back to: [Server Management Screen– Screen map](#)

5.1 Console Redirection

The Console Redirection screen allows the user to enable or disable console redirection for remote system management, and to configure the connection options for this feature.

To access this screen from the front page, select **Server Management > Console Redirection**. Press the **<Esc>** key to return to the Server Management screen.

When console redirection is active, all POST and setup displays are in text mode. The text mode POST diagnostic screen is displayed regardless of the Quiet Boot setting. This is due to the limitations of console redirection, which is based on data terminal emulation using a serial data interface to transfer character data.

Console redirection can use either of the two serial ports provided by the SuperIO in the BMC. However, if console redirection is to be coordinated with Serial Over LAN (SOL), the user should be aware that SOL is only supported through serial port A.

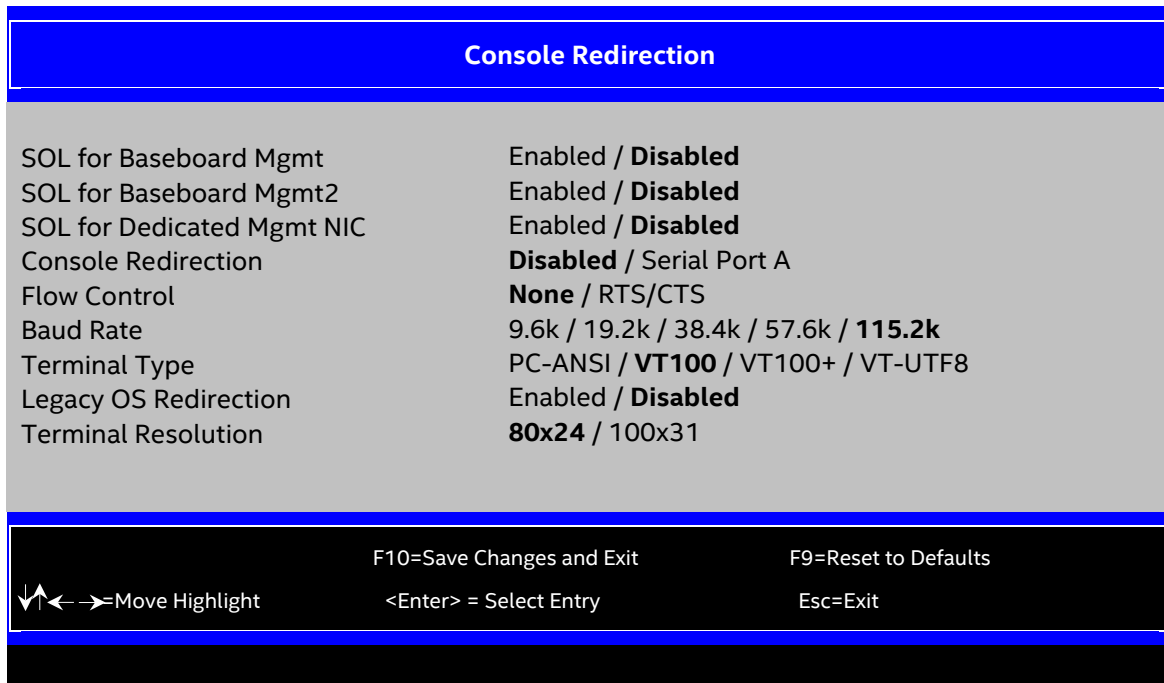


Figure 27. Console Redirection screen

1. SOL for Baseboard Mgmt

Value: Enabled/**Disabled**

Help Text: Enable/disable Serial Over LAN feature for Baseboard Management Lan.
 [Advance>Serial Port Configuration>Serial A Enable] needs be enable before enabling this option.

Comments: None

Back to: [Console Redirection – Server Management Screen– Screen map](#)

2. SOL for Baseboard Mgmt2

Value: Enabled/**Disabled**

Help Text: Enable/disable Serial Over LAN feature for Baseboard Management Lan 2.

[Advance>Serial Port Configuration>Serial A Enable] needs be enable before enabling this option.

Comments: None

Back to: [Console Redirection – Server Management Screen– Screen map](#)

3. SOL for Dedicated Mgmt NIC

Value: Enabled/**Disabled**

Help Text: Enable/disable Serial Over LAN feature for Dedicated Mgmt NIC.

[Advance>Serial Port Configuration>Serial A Enable] needs be enable before enabling this option.

Comments: This option controls whether the BMC enables or disables the SOL feature on each LAN channel of the system following the IPMI 2.0 Specification. This feature could be re-enabled using the specific IPMI command. For more information, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 7.4. When SOL is enabled and saved, the BIOS automatically updates the console redirection settings to use Serial Port A with 115.2k baud rate, VT100 terminal type, and no flow control.

Back to: [Console Redirection – Server Management Screen– Screen map](#)

4. Console Redirection

Value: **Disabled**/Serial Port A

Help Text: Console redirection allows a serial port to be used for server management tasks.

[Disabled] – No console redirection.

[Serial Port A] – Configure serial port A for console redirection.

Enabling this option will disable display of the Quiet Boot logo screen during POST.

Comments: Serial console redirection can use Serial Port A. Note that SOL is only supported through Serial Port A.

If console redirection is set to Disabled, all other options on this screen are grayed out and unavailable.

Only serial ports that are enabled are available to choose for console redirection. If Serial A is not set to Enabled, then the Console Redirection setting is disabled and grayed out as inactive. In that case, all other options on this screen are also grayed out.

Back to: [Console Redirection – Server Management Screen– Screen map](#)

5. Flow Control

Value: **None/(RTS/CTS)**

Help Text: Flow control is the handshake protocol.
This setting must match the remote terminal application.
[None] - Configure for no flow control.
[RTS/CTS] - Configure for hardware flow control.

Comments: Flow control is necessary only when there is a possibility of data overrun. In that case, the Request to Send/Clear to Send (RTS/CTS) hardware handshake is a relatively conservative protocol which can usually be configured at both ends.

When Console Redirection is set to Disabled, this option is grayed out and unavailable.

Back to: [Console Redirection – Server Management Screen– Screen map](#)

6. Baud Rate

Value: 9.6k/19.2k/38.4k/57.6k/**115.2k**

Help Text: Serial port transmission speed. This setting must match the remote terminal application.

Comments: In most modern server management applications, serial data transfer is consolidated over an alternative faster medium like LAN, and 115.2k is the speed of choice.

When Console Redirection is set to Disabled, this option is grayed out and unavailable.

Back to: [Console Redirection – Server Management Screen– Screen map](#)

7. Terminal Type

Value: PC-ANSI/**VT100**/VT100+/VT-UTF8

Help Text: Character formatting used for console redirection. This setting must match the remote terminal application.

Comments: The VT100 and VT100+ terminal emulations are essentially the same. VT-UTF8 is a UTF8 encoding of VT100+. PC-ANSI is the native character encoding used by PC-compatible applications and emulators. For more information about character encoding, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 7.4.

When Console Redirection is set to Disabled, this option is grayed out and unavailable.

Back to: [Console Redirection – Server Management Screen– Screen map](#)

8. Legacy OS Redirection

Value: Enabled/**Disabled**

Help Text: This option enables legacy OS redirection (i.e., DOS) on serial port. If it is enabled, the associated serial port is hidden from the legacy OS.

Comments: Operating systems that are redirection-aware implement their own console redirection mechanisms. For a legacy OS which is not aware, this option allows the BIOS to handle redirection.

When Console Redirection is set to Disabled, this option is grayed out and unavailable.

Back to: [Console Redirection – Server Management Screen– Screen map](#)

9. Terminal Resolution

Value: **80x24/100x31**

Help Text: Remote Terminal Resolution

Comments: This option allows the use of a larger terminal screen area, although it does not change setup displays to match.

When Console Redirection is set to Disabled, this option is grayed out and unavailable.

Back to: [Console Redirection – Server Management Screen– Screen map](#)

5.2 System Information

The System Information screen allows the user to view part numbers, serial numbers, and firmware revisions. This is an information only screen

To access this screen from the front page, select **Server Management > System Information**. Press the **<Esc>** key to return to the Server Management screen.

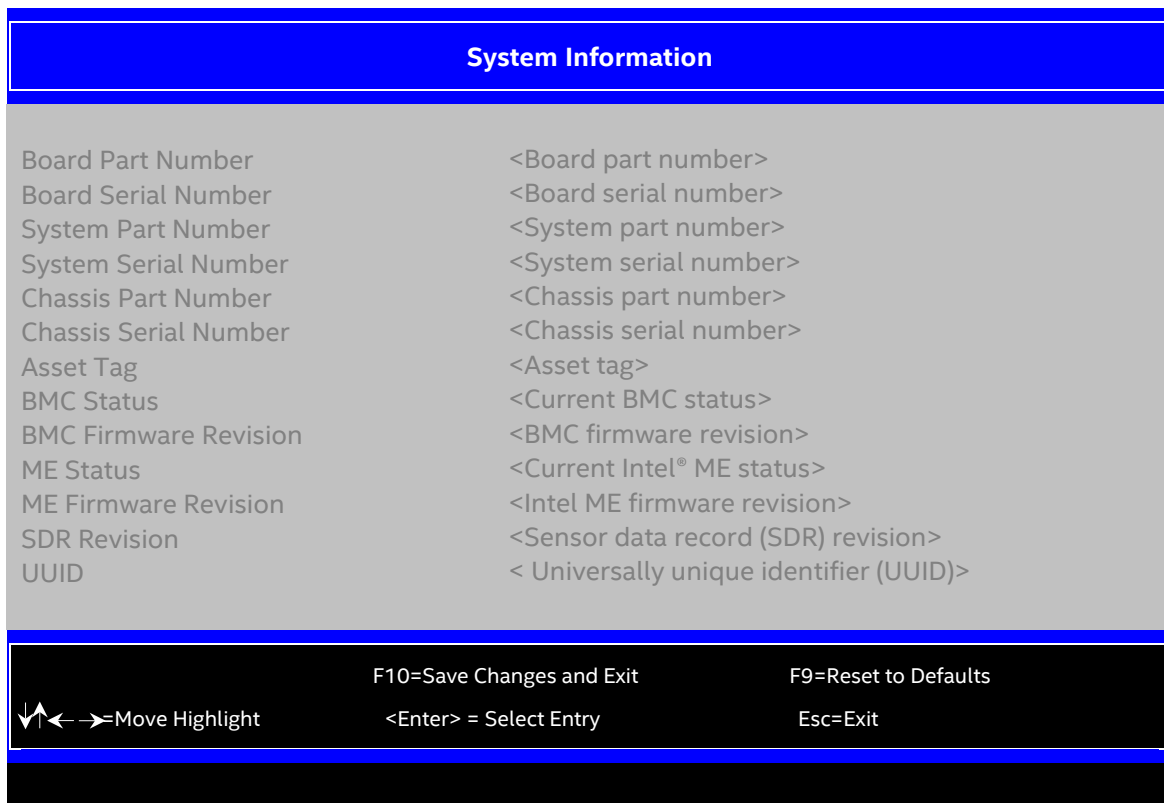


Figure 28. System Information screen

1. Board Part Number

Value: <Board part number>

Help Text: None

Comments: *Information only.*

Back to: [System Information – Server Management Screen– Screen map](#)

2. Board Serial Number

Value: <Board serial number>

Help Text: None

Comments: *Information only.*

Back to: [System Information – Server Management Screen– Screen map](#)

3. System Part Number

Value: <System part number>

Help Text: None

Comments: *Information only.*

Back to: [System Information – Server Management Screen– Screen map](#)

4. System Serial Number

Value: <System serial number>

Help Text: None

Comments: *Information only.*

Back to: [System Information – Server Management Screen– Screen map](#)

5. Chassis Part Number

Value: <Chassis part number>

Help Text: None

Comments: *Information only.*

Back to: [System Information – Server Management Screen– Screen map](#)

6. Chassis Serial Number

Value: <Chassis serial number>

Help Text: None

Comments: *Information only.*

Back to: [System Information – Server Management Screen– Screen map](#)

7. Asset Tag

Value: <Asset tag>

Help Text: None

Comments: *Information only.*

Back to: [System Information – Server Management Screen– Screen map](#)

8. BMC Status

Value: <Current BMC status>

Help Text: None

Comments: *Information only.* This option indicates the BMC status – functional or failed.

Back to: [System Information – Server Management Screen– Screen map](#)

9. BMC Firmware Revision

Value: <BMC firmware revision>

Help Text: None

Comments: *Information only.*

Back to: [System Information – Server Management Screen– Screen map](#)

10. ME Status

Value: <Current Intel® Management Engine (Intel® ME) status>

Help Text: None

Comments: *Information only.* This option indicates the Intel ME status – functional or failed.

Back to: [System Information – Server Management Screen– Screen map](#)

11. ME Firmware Revision

Value: <Intel ME firmware revision>

Help Text: None

Comments: *Information only.*

Back to: [System Information – Server Management Screen– Screen map](#)

12. SDR Revision

Value: <Sensor data record (SDR) revision>

Help Text: None

Comments: *Information only.*

Back to: [System Information – Server Management Screen– Screen map](#)

13. UUID

Value: <Universally unique identifier (UUID)>

Help Text: None

Comments: *Information only.*

Back to: [System Information – Server Management Screen– Screen map](#)

5.3 BMC LAN Configuration

The BMC configuration screen allows the user to configure the BMC baseboard LAN channel and a dedicated management LAN channel, and to manage BMC user settings for up to five BMC users.

To access this screen from the front page, select **Server Management > BMC LAN Configuration**. Press the **<Esc>** key to return to the Server Management screen.

A Dedicated Management NIC Module (DMN) may be installed in the server system. In that case, the LAN settings for the DMN NIC may be configured.

This screen has a choice of IPv4 or IPv6 addressing. IPv6 and IPv4 addressing options appears and are configured simultaneously. This is true for both the baseboard LAN configuration and the DMN configuration.

IP addresses for either IPv4 or IPv6 addressing can be assigned by static IP addresses manually typed in, or by dynamic IP addresses supplied by a Dynamic Host Configuration Protocol (DHCP) server. IPv6 addressing can also be provided by “stateless autoconfiguration” which does not require a DHCP server.

The BMC LAN Configuration screen is unusual in that the LAN configuration parameters are maintained by the BMC itself, so this screen is just a user interface to the BMC configuration. As such, the initial values of the LAN options shown on the screen are acquired from the BMC when this screen is initially accessed by a user. Any values changed by the user are communicated back to the BMC when a changes are saved. If changes are discarded, any accumulated changes from this screen are disregarded and lost.

BMC LAN Configuration	
▶ User Configuration	
Baseboard LAN configuration	
IP Source	Static/Dynamic
IP Address	[0.0.0.0]
Subnet Mask	[0.0.0.0]
Gateway IP	[0.0.0.0]
Baseboard LAN IPv6 configuration	
IPv6	Enabled/Disabled
IPv6 Source	Static/Dynamic/Auto
IPv6 Address	[0000.0000.0000.0000.0000.0000.0000.0000]
Gateway IPv6	[0000.0000.0000.0000.0000.0000.0000.0000]
IPv6 Prefix Length	[0 – 128, 64 is default]
Dedicated Management LAN Configuration	
Remote Management Module	<Not Present/ Present >
IP Source	Static/Dynamic
IP Address	[0.0.0.0]
Subnet Mask	[0.0.0.0]
Gateway IP	[0.0.0.0]
Dedicated Management LAN IPv6 Configuration	
IPv6 Source	Static/Dynamic/Auto
IPv6 Address	[0000.0000.0000.0000.0000.0000.0000.0000]
Gateway IPv6	[0000.0000.0000.0000.0000.0000.0000.0000]
IPv6 Prefix Length	[0 – 128, 64 is default]
BMC DHCP Host Name	[DHCP Host Name display/edit]
F10=Save Changes and Exit F9=Reset to Defaults ↩↲↳↵ Move Highlight <Enter> = Select Entry Esc=Exit	

Figure 29. BMC LAN Configuration screen

1. User Configuration

Value: None

Help Text: View/Configure User information and settings of the BMC.

Comments: *Selection only.* For more information on User Configuration settings, see section 5.3.1.

Back to: [BMC LAN Configuration – Server Management Screen– Screen map](#)

2. IP Source

Value: **Static/Dynamic**

Help Text: Select BMC IP Source. If [Static], IP parameters may be edited. If [Dynamic], these fields are display-only and IP address is acquired automatically (DHCP).

Comments: This specifies the IP source for IPv4 addressing for the baseboard LAN. There is a separate IP Source field for the dedicated management LAN configuration.

When IPv4 addressing is used, the initial value for this field is acquired from the BMC, and its setting determines whether the other baseboard LAN IPv4 addressing fields are display-only (when Dynamic) or can be edited (when Static).

Back to: [BMC LAN Configuration – Server Management Screen– Screen map](#)

3. IP Address

Value: [Entry Field 0.0.0.0, **0.0.0.0 is default**]

Help Text: View/Edit IP Address. Press <Enter> to edit.

Comments: This specifies the IPv4 address for the baseboard LAN. There is a separate IPv4 Address field for the dedicated management LAN configuration.

When IPv4 addressing is used, the initial value for this field is acquired from the BMC. The IP Source setting determines whether this field is display-only (when Dynamic) or can be edited (when Static).

Back to: [BMC LAN Configuration – Server Management Screen– Screen map](#)

4. Subnet Mask

Value: [Entry Field 0.0.0.0, **0.0.0.0 is default**]

Help Text: View/Edit Subnet Mask. Press <Enter> to edit.

Comments: This specifies the IPv4 addressing subnet mask for the baseboard LAN. There is a separate IPv4 Subnet Mask field for the dedicated management LAN configuration.

When IPv4 addressing is used, the initial value for this field is acquired from the BMC. The IP Source setting determines whether this field is display-only (when Dynamic) or can be edited (when Static).

Back to: [BMC LAN Configuration – Server Management Screen– Screen map](#)

5. Gateway IP

Value: [Entry Field 0.0.0.0, **0.0.0.0 is default**]

Help Text: View/Edit Gateway IP. Press <Enter> to edit.

Comments: This specifies the IPv4 addressing gateway IP for the baseboard LAN. There is a separate IPv4 Gateway IP field for the dedicated management LAN configuration.

When IPv4 addressing is used, the initial value for this field is acquired from the BMC. The IP Source setting determines whether this field is display-only (when Dynamic) or can be edited (when Static).

Back to: [BMC LAN Configuration – Server Management Screen– Screen map](#)

6. IPv6

Value: **Enabled/Disabled**

Help Text: Option to Enable/Disable IPv6 addressing and any IPv6 network traffic on these channels.

Comments: The initial value for this field is acquired from the BMC. It may be changed to switch between IPv4 and IPv6 addressing technologies.

If this option is set to Disabled, all other IPv6 fields are not visible for the baseboard LAN and dedicated management DMN (if installed). When IPv6 addressing is enabled, all IPv6 fields for the baseboard LAN and dedicated management DMN become visible.

Back to: [BMC LAN Configuration – Server Management Screen– Screen map](#)

7. IPv6 Source

Value: **Static/Dynamic/Auto**

Help Text: Select BMC IPv6 source. If [Static], IPv6 parameters may be edited. If [Dynamic], these fields are display-only and IPv6 address is acquired automatically (DHCP). If [Auto], these fields are display-only and IPv6 address is acquired using ICMPv6 router / neighbor discovery.

Comments: This specifies the IP source for IPv6 addressing for the baseboard LAN configuration. There is a separate IPv6 Source field for the dedicated management LAN configuration.

This option is only visible when the IPv6 option is set to Enabled.

When IPv6 addressing is enabled, the initial value for this field is acquired from the BMC, and its setting determines whether the other baseboard LAN IPv6 addressing fields are display-only (when Dynamic or Auto) or can be edited (when Static).

Back to: [BMC LAN Configuration – Server Management Screen– Screen map](#)

8. IPv6 Address

Value: [Entry Field 0000:0000:0000:0000:0000:0000:0000:0000,
0000:0000:0000:0000:0000:0000:0000:0000 is default]

Help Text: View/Edit IPv6 address. Press <Enter> to edit. IPv6 addresses consist of 8 hexadecimal 4-digit numbers separated by colons.

Comments: This specifies the IPv6 address for the baseboard LAN. There is a separate IPv6 Address field for the dedicated management LAN configuration.

This option is only visible when the IPv6 option is set to Enabled.

When IPv6 addressing is used, the initial value for this field is acquired from the BMC. The IPv6 Source setting determines whether this field is display-only (when Dynamic or Auto) or can be edited (when Static).

Back to: [BMC LAN Configuration – Server Management Screen– Screen map](#)

9. Gateway IPv6

Value: [Entry Field 0000:0000:0000:0000:0000:0000:0000:0000,
0000:0000:0000:0000:0000:0000:0000:0000 is default]

Help Text: View/Edit Gateway IPv6 address. Press <Enter> to edit. Gateway IPv6 addresses consist of 8 hexadecimal 4-digit numbers separated by colons.

Comments: This specifies the gateway IPv6 address for the baseboard LAN. There is a separate Gateway IPv6 address field for the dedicated management LAN configuration.

This option is only visible when the IPv6 option is set to Enabled.

When IPv6 addressing is used, the initial value for this field is acquired from the BMC. The IPv6 Source setting determines whether this field is display-only (when Dynamic or Auto) or can be edited (when Static).

Back to: [BMC LAN Configuration](#) – [Server Management Screen](#)– [Screen map](#)

10. IPv6 Prefix Length

Value: [Entry Field 0-128, **64 is default**]

Help Text: View/Edit IPv6 Prefix Length from 0 to 128 (default 64). Press <Enter> to edit.

Comments: This specifies the IPv6 prefix length for the baseboard LAN. There is a separate IPv6 Prefix Length field for the dedicated management LAN configuration.

This option is only visible when the IPv6 option is set to Enabled.

When IPv6 addressing is used, the initial value for this field is acquired from the BMC. The IPv6 Source setting determines whether this field is display-only (when Dynamic or Auto) or can be edited (when Static).

Back to: [BMC LAN Configuration](#) – [Server Management Screen](#)– [Screen map](#)

11. Remote Management Module

Value: <Not Present/Present>

Help Text: None

Comments: *Information only.* Displays whether a dedicated management LAN component is currently installed. This information may come from querying the BMC.

Note: The Intel® Remote Management Module 4 Lite (Intel® RMM4 Lite) NIC (dedicated NIC) should always be available. The Remote Management Module field should display the Intel RMM4 Lite module status.

Back to: [BMC LAN Configuration](#) – [Server Management Screen](#)– [Screen map](#)

12. IP Source

Value: **Static/Dynamic**

Help Text: Select Dedicated Management LAN IP source. If [Static], IP parameters may be edited. If [Dynamic], these fields are display-only and IP address is acquired automatically (DHCP).

Comments: This specifies the IP source for IPv4 addressing for the DMN LAN connection. There is a separate IP Source field for the baseboard LAN configuration.

When IPv4 addressing is used, the initial value for this field is acquired from the BMC, and its setting determines whether the other DMN LAN IPv4 addressing fields are display-only (when Dynamic) or can be edited (when Static).

Back to: [BMC LAN Configuration – Server Management Screen– Screen map](#)

13. IP Address

Value: [Entry Field 0.0.0.0, **0.0.0.0 is default**]

Help Text: View/Edit IP Address. Press <Enter> to edit.

Comments: This specifies the IPv4 address for the DMN LAN. There is a separate IPv4 Address field for the baseboard LAN configuration.

When IPv4 addressing is used, the initial value for this field is acquired from the BMC. The IP Source setting determines whether this field is display-only (when Dynamic) or can be edited (when Static).

Back to: [BMC LAN Configuration – Server Management Screen– Screen map](#)

14. Subnet Mask

Value: [Entry Field 0.0.0.0, **0.0.0.0 is default**]

Help Text: View/Edit Subnet Mask. Press <Enter> to edit.

Comments: This specifies the IPv4 addressing subnet mask for the DMN LAN. There is a separate IPv4 Subnet Mask field for the baseboard LAN configuration.

When IPv4 addressing is used, the initial value for this field is acquired from the BMC. The IP Source setting determines whether this field is display-only (when Dynamic) or can be edited (when Static).

Back to: [BMC LAN Configuration – Server Management Screen– Screen map](#)

15. Gateway IP

Value: [Entry Field 0.0.0.0, **0.0.0.0 is default**]

Help Text: View/Edit Gateway IP. Press <Enter> to edit.

Comments: This specifies the IPv4 addressing gateway IP for the DMN LAN. There is a separate IPv4 Gateway IP field for the baseboard LAN configuration.

When IPv4 addressing is used, the initial value for this field is acquired from the BMC. The IP Source setting determines whether this field is display-only (when Dynamic) or can be edited (when Static).

Back to: [BMC LAN Configuration – Server Management Screen– Screen map](#)

16. IPv6 Source

Value: **Static/Dynamic/Auto**

Help Text: Select DMN LAN IPv6 source. If [Static], IPv6 parameters may be edited. If [Dynamic], these fields are display-only and IPv6 address is acquired automatically (DHCP). If [Auto], these fields are display-only and IPv6 address is acquired using ICMPv6 router / neighbor discovery.

Comments: This specifies the IP source for IPv6 addressing for the DMN LAN configuration. There is a separate IPv6 Source field for the baseboard LAN configuration.

This option is only visible when the IPv6 option is set to Enabled.

When IPv6 addressing is enabled, the initial value for this field is acquired from the BMC, and its setting determines whether the other DMN LAN IPv6 addressing fields are display-only (when Dynamic or Auto) or can be edited (when Static).

Back to: [BMC LAN Configuration – Server Management Screen– Screen map](#)

17. IPv6 Address

Value: [Entry Field 0000:0000:0000:0000:0000:0000:0000:0000,
0000:0000:0000:0000:0000:0000:0000:0000 is default]

Help Text: View/Edit IPv6 address. Press <Enter> to edit. IPv6 addresses consist of 8 hexadecimal 4-digit numbers separated by colons.

Comments: This specifies the IPv6 address for the DMN LAN. There is a separate IPv6 Address field for the baseboard LAN configuration.

This option is only visible when the IPv6 option is set to Enabled.

When IPv6 addressing is used, the initial value for this field is acquired from the BMC. The setting of IPv6 Source determines whether this field is display-only (when Dynamic or Auto) or can be edited (when Static).

Back to: [BMC LAN Configuration – Server Management Screen– Screen map](#)

18. Gateway IPv6

Value: [Entry Field 0000:0000:0000:0000:0000:0000:0000:0000,
0000:0000:0000:0000:0000:0000:0000:0000 is default]

Help Text: View/Edit Gateway IPv6 address. Press <Enter> to edit. Gateway IPv6 addresses consist of 8 hexadecimal 4-digit numbers separated by colons.

Comments: This specifies the gateway IPv6 address for the DMN LAN. There is a separate Gateway IPv6 Address field for the baseboard LAN configuration.

This option is only visible when the IPv6 option is set to Enabled.

When IPv6 addressing is used, the initial value for this field is acquired from the BMC. The IPv6 Source setting determines whether this field is display-only (when Dynamic or Auto) or can be edited (when Static).

Back to: [BMC LAN Configuration – Server Management Screen– Screen map](#)

19. IPv6 Prefix Length

Value: [Entry Field 0-128, **64 is default**]

Help Text: View/Edit IPv6 Prefix Length from 0 to 128 (default 64). Press <Enter> to edit.

Comments: This specifies the IPv6 prefix length for the DMN LAN. There is a separate IPv6 Prefix Length field for the baseboard LAN configuration.

This option is only visible when the IPv6 option is set to Enabled.

When IPv6 addressing is used, the initial value for this field is acquired from the BMC. The IPv6 Source setting determines whether this field is display-only (when Dynamic or Auto) or can be edited (when Static).

Back to: [BMC LAN Configuration](#) – [Server Management Screen](#)– [Screen map](#)

20. BMC DHCP Host Name

Value: [Entry Field, 2-63 characters]

Help Text: View/Edit BMC DHCP host name. Press <Enter> to edit. Host name should start with an alphabetic, remaining can be alphanumeric characters. Host name length may be from 2 to 63 characters.

Comments: This field is active and may be edited whenever at least one of the IP Source or IPv6 Source options is set to Dynamic. This is the name of the DHCP host from which dynamically assigned IPv4 or IPv6 addressing parameters are acquired.

The initial value for this field is supplied from the BMC, if there is a DHCP host available. The user can edit the existing host or enter a different DHCP host name.

If none of the IP/IPv6 Source fields is set to Dynamic, then this BMC DHCP Host Name field is grayed out and inactive.

Back to: [BMC LAN Configuration](#) – [Server Management Screen](#)– [Screen map](#)

5.3.1 User Configuration

The User Configuration screen allows the user to manage BMC user settings for up to five BMC users.

To access this screen from the front page, select **Server Management > BMC LAN Configuration > User Configuration**. Press the <Esc> key to return to the BMC LAN Configuration screen.

User Configuration	
User ID	anonymous
Privilege	Callback/User/Operator/ Administrator
User Status	Enabled/ Disabled
User Password	
Error! Reference source not found.	
User ID	root
Privilege	Administrator
User Status	Enabled/ Disabled
User Password	
User ID	User3
Privilege	Callback/User/Operator/ Administrator
User Status	Enabled/ Disabled
User Name	[User Name display/edit]
User Password	
Error! Reference source not found.	
User ID	User4
Privilege	Callback/User/Operator/ Administrator
User Status	Enabled/ Disabled
User Name	[User Name display/edit]
User Password	
User ID	User5
Privilege	Callback/User/Operator/ Administrator
User Status	Enabled/ Disabled
User Name	[User Name display/edit]
User Password	
<div> <div>  Move Highlight </div> <div> F10=Save Changes and Exit </div> <div> F9=Reset to Defaults </div> </div> <div> <div><Enter> = Select Entry</div> <div>Esc=Exit</div> </div>	

Figure 30. User Configuration screen

1. User ID

Value: anonymous/root/User3/User4/User5

Help Text: None

Comments: *Information only.* These five user IDs are fixed and cannot be changed. The BMC supports 15 user IDs natively but only the first five are supported through this interface.

Back to: [User Configuration – BMC LAN Configuration – Server Management Screen– Screen map](#)

2. Privilege

Value: Callback/User/Operator/**Administrator**

Help Text: View/Select user privilege. User2 (root) privilege is "Administrator" and cannot be changed. The default privilege of User3 is User.

Comments: The level of privilege that is assigned for a user ID affects which functions that user may perform.

Back to: [User Configuration – BMC LAN Configuration – Server Management Screen– Screen map](#)

3. User Status

Value: Enabled/**Disabled**

Help Text: Enable/Disable LAN access for selected user. Also enables/disables SOL, KVM, and media redirection.

Comments: Note that the default status setting is Disabled.

Back to: [User Configuration – BMC LAN Configuration – Server Management Screen– Screen map](#)

4. User Name

Value: [Entry Field, 1-16 characters]

Help Text: Press <Enter> to edit User Name. User Name is a string of 1 to 16 alphanumeric characters, and must begin with an alphabetic character. User Name cannot be changed for User1 (anonymous) and User2 (root).

Comments: The User Name field can only be edited for user IDs other than anonymous and root. The user names for those two user IDs may not be changed.

Back to: [User Configuration – BMC LAN Configuration – Server Management Screen– Screen map](#)

5. User Password

Value: [Popup Entry Field, 0-20 characters]

Help Text: Press <Enter> key to enter password. Maximum length is 20 characters. Any ASCII printable characters can be used: case-sensitive alphabetic, numeric, and special characters.

Note: Password entered will override any previously set password.

Comments: This field does not indicate whether there is a password set already. There is no display; press <Enter> to open a popup with an entry field to enter a new password. Any new password overrides the previous password, if there was one.

Back to: [User Configuration – BMC LAN Configuration – Server Management Screen– Screen map](#)

6. Boot Maintenance Manager Screen

The Boot Maintenance Manager screen contains all bootable media encountered during POST and allows the user to configure the desired order in which boot devices are to be tried.

The first boot device in the specified boot order that is present and bootable during POST is used to boot the system. The same device continues to be used to reboot the system until the boot device configuration has changed (that is, a change in which boot devices are present), or until the system has been powered down and booted in a cold power-on boot.

Note: USB devices can be “hotplugged” during POST and are detected and “beeped”. They are enumerated and displayed on the USB Configuration Setup screen. However, they may not be enumerated as bootable devices, depending on when in POST they were hotplugged. If they were recognized before the enumeration of bootable devices, they appear as boot devices, if appropriate. If they were recognized after the enumeration, they do not appear as a bootable device on the Boot Maintenance Manager screen, the Boot Manager screen, or the Boot Menu.

There are two main types of boot order control – legacy boot and UEFI boot. These are mutually exclusive; when UEFI boot is enabled, legacy boot (the default) is disabled. Within legacy boot operation, there are two further methods of ordering boot devices – dynamic boot order and static boot order. For more information on these different boot option methods, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 6.1.

The default for boot order control is legacy boot with dynamic boot order. If all types of bootable devices are installed in the system, then the default boot order is as follows:

- Legacy CD/DVD-ROM
- Legacy Floppy Disk Drive
- Legacy Hard Disk Drive
- Legacy PXE Network Device
- Legacy Boot Entry Vector (BEV) Device
- EFI Shell and EFI Boot paths

In this default boot order, a USB device may appear in any of several device classes, due to the flexibility of USB connections and USB emulation of various types of devices.

Note: A USB key (flash drive) can be formatted to emulate either a floppy drive or a hard drive and appears in that boot device class. Although it can be formatted as a CDROM drive, it is not detected as such and is treated as a hard disk appearing in the list of available hard drives.

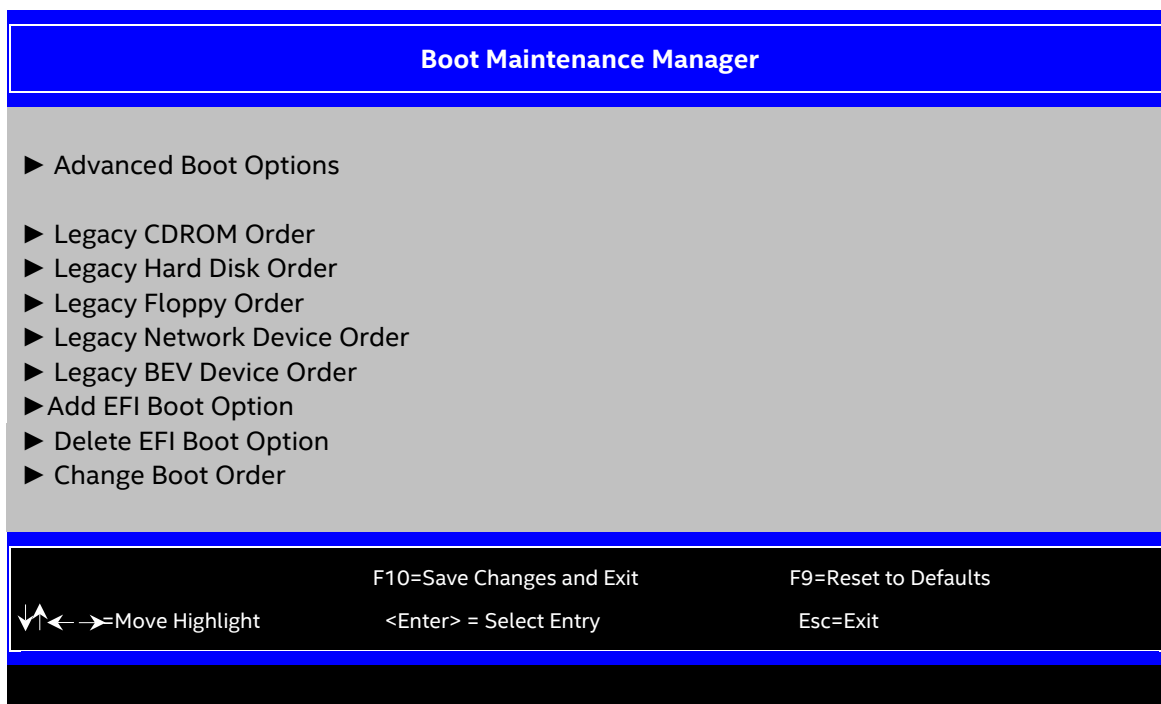


Figure 31. Boot Maintenance Manager Screen

1. Advanced Boot Options

Value: None

Help Text: Set the Advanced Boot Options in this group.

Comments: *Selection only.* For more information on Advanced Boot Options, see section 6.1.

Back to: [Boot Maintenance Manager Screen – Screen map](#)

2. Legacy CDROM Order

Value: None

Help Text: Set the order of the legacy devices in this group.

Comments: *Selection only.* For more information on Legacy CDROM Order settings, see section 6.2.

This option appears when one or more bootable CDROM drives are available in the system and the Boot Mode options is set as Legacy. This includes USB CDROM devices but not USB keys formatted for CDROM emulation, which are seen as hard disk drives.

Back to: [Boot Maintenance Manager Screen – Screen map](#)

3. Legacy Hard Disk Order

Value: None

Help Text: Set the order of the legacy devices in this group.

Comments: *Selection only.* For more information on Legacy Hard Disk Order settings, see section 6.3.

This option appears when one or more bootable hard disk drives are available in the system and the Boot Mode options is set as Legacy. This includes USB hard disk devices and USB keys formatted for hard disk or CDROM emulation.

Back to: [Boot Maintenance Manager Screen – Screen map](#)

4. Legacy Floppy Order

Value: None

Help Text: Set the order of the legacy devices in this group.

Comments: *Selection only.* For more information on Legacy Floppy Order, see section 6.4.

This option appears when one or more bootable floppy disk drives are available in the system and the Boot Mode options is set as Legacy. This includes USB floppy disk devices and USB keys formatted for floppy disk emulation.

Back to: [Boot Maintenance Manager Screen – Screen map](#)

5. Legacy Network Device Order

Value: None

Help Text: Set the order of the legacy devices in this group.

Comments: *Selection only.* For more information on Legacy Network Device Order, see section 6.5.

This option appears when one or more bootable network devices are available in the system and the Boot Mode options is set as Legacy.

Back to: [Boot Maintenance Manager Screen – Screen map](#)

6. Legacy BEV Device Order

Value: None

Help Text: Set the order of the legacy devices in this group.

Comments: *Selection only.* For more information on Legacy DEV Device Order, see section 6.6.

This option appears when one or more bootable BEV devices are available in the system and the Boot Mode options is set as Legacy.

Back to: [Boot Maintenance Manager Screen – Screen map](#)

7. Add EFI Boot Option

Value: None

Help Text: Add a new EFI boot option to the boot order.

Comments: *Selection only.* For more information on Add EFI Boot Option, see section 6.7.

This option is only displayed if an EFI bootable device is available to the system.

Back to: [Boot Maintenance Manager Screen – Screen map](#)

8. Delete EFI Boot Option

Value: None

Help Text: Remove an EFI boot option from the boot order.

Comments: *Selection only.* For more information on Delete EFI Boot Option settings, see section 6.8.

This option is only displayed if an EFI boot path is included in the boot order.

Back to: [Boot Maintenance Manager Screen – Screen map](#)

9. Change Boot Order

Value: None

Help Text: Set the Boot Order in this group.

Comments: *Selection only.* For more information on Change Boot Order settings, see section 6.9.

Back to: [Boot Maintenance Manager Screen – Screen map](#)

6.1 Advanced Boot Options

The Advanced Boot Options screen allows the user to control the advanced boot options features like Boot Mode and Static Boot Order.

To access this screen from the front page, select **Boot Maintenance Manager > Advanced Boot Options**. Press the **<Esc>** key to return to the Boot Maintenance Manager screen.

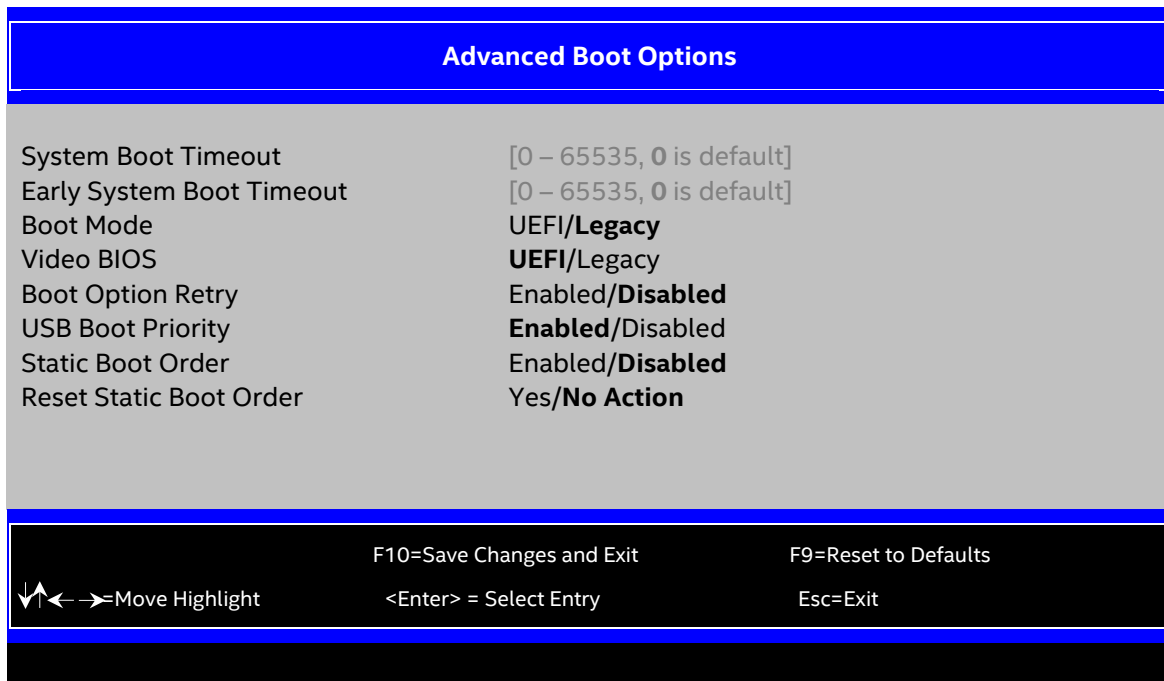


Figure 32. Advanced Boot Options screen

1. System Boot Timeout

Value: [Entry Field 0-65535, 0 is default]

Help Text: The number of seconds the BIOS will pause at the end of POST to allow the user to press the [F2] key for entering the BIOS Setup utility. Valid values are 0-65535. Zero is the default. A value of 65535 causes the system to go to the Boot Manager menu and wait for user input for every system boot.

Comments: After entering the desired timeout in seconds, press the **<Enter>** key to register that timeout value to the system. The timeout value entered takes effect on the next boot.

This timeout value is independent of the FRB-2 setting for BIOS boot failure protection. The FBR-2 countdown is suspended during the time that the boot timeout countdown is active.

If the **<Pause>** key is pressed while the boot timeout is active, the boot timeout countdown is suspended until the pause state is dismissed and normal POST processing is resumed.

Back to: [Advanced Boot Options – Boot Maintenance Manager Screen – Screen map](#)

2. Early System Boot Timeout

Value: [Entry Field 0-65535, **0 is default**]

Help Text: The number of seconds the BIOS will pause before Option ROMs are dispatched.
Valid values are 0-65535. Zero is the default. A value of 65535 causes the system to go to the Boot Manager menu and wait for user input for every system boot.

Comments: After entering the desired timeout in seconds, press the **<Enter>** key to register that timeout value to the system. The timeout value takes effect on the next boot.

This timeout value is independent of the FRB-2 setting for BIOS boot failure protection. The FBR2 countdown is suspended during the time that the boot timeout countdown is active.

If the **<Pause>** key is pressed while the boot timeout is active, the boot timeout countdown is suspended until the pause state is dismissed and normal POST processing is resumed.

Back to: [Advanced Boot Options – Boot Maintenance Manager Screen – Screen map](#)

3. Boot Mode

Value: **UEFI/Legacy**

Help Text: When Boot Mode is Legacy, the BIOS only loads modules required for booting Legacy Operating Systems.
When Boot Mode is UEFI, the BIOS only loads modules required for booting UEFI-aware Operating Systems.

Comments: When Boot Mode is Legacy, only Legacy Option ROMs and Legacy OS Boot are supported; UEFI option ROMs and UEFI OS Boot are not supported.

When Boot Mode is UEFI, Only UEFI option ROMs and UEFI OS boot are supported; Legacy option ROMs and Legacy OS Boot are not supported.

Back to: [Advanced Boot Options – Boot Maintenance Manager Screen – Screen map](#)

4. Video BIOS

Value: **UEFI/Legacy**

Help Text: If Video BIOS is Legacy, the BIOS uses the legacy video ROM instead of the EFI video ROM when Boot Mode is UEFI.

Comments: This option appears only when Boot Mode option is set as UEFI. The default – UEFI – is to use UEFI Graphic Output Protocol (GOP); if it is Legacy, legacy video ROM is used.
If Boot Mode changes to Legacy, Video BIOS changes to Legacy and is hidden automatically.

Back to: [Advanced Boot Options – Boot Maintenance Manager Screen – Screen map](#)

5. Boot Option Retry

Value: **Enabled/Disabled**

Help Text: If enabled, this continually retries non-EFI-based boot options without waiting for user input.

Comments: This option is intended to keep retrying in cases where the boot devices are initially slow to respond, such as if the devices are asleep and do not wake quickly enough. However, if none of the devices in the boot order ever responds, the BIOS continues to reboot indefinitely.

Back to: [Advanced Boot Options – Boot Maintenance Manager Screen – Screen map](#)

6. USB Boot Priority

Value: **Enabled/Disabled**

Help Text: If enabled, newly discovered USB devices are moved to the top of their boot device category.
If disabled, newly discovered USB devices are moved to the bottom of their boot device category.

Comments: This option enables or disables the USB reorder functionality. Enabling USB Boot Priority allows a user to plug in a USB device and immediately boot to it, for example, in case of a maintenance or system administration operation. If a user password is installed, USB Boot Priority action is suspended. For more information, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 6.1.2.3.

Back to: [Advanced Boot Options – Boot Maintenance Manager Screen – Screen map](#)

7. Static Boot Order

Value: **Enabled/Disabled**

Help Text: [Disabled] – Devices removed from the system are deleted from Boot Order Tables.
[Enabled] – Devices removed have positions in Boot Order Tables retained for later reinsertion.

Comments: This option appears only when the Boot Mode option is set as Legacy. If the Static Boot Order option is set to Enabled, it enables Static Boot Order (SBO) from the next boot onward and the current boot order is stored as the SBO template.
If the option is set to Disabled, the SBO is disabled and the SBO template is cleared.
For information about static boot options, refer to *Intel® Server Board S7200AP Family BIOS EPS* section 6.1.2.2.

Back to: [Advanced Boot Options – Boot Maintenance Manager Screen – Screen map](#)

8. Reset Static Boot Order

Value: **Yes/No Action**

Help Text: [Yes] Take snapshot of current boot order to save as Static Boot Order Template.

Comments: This option appears only when the Boot Mode option is set as Legacy. This option allows the user to save the boot order list as the SBO template without disabling and re-enabling the Static Boot Order option.

Select Yes to snapshot the current boot options list into the SBO list on the next boot. After saving the SBO list, this option changes back to No Action automatically.

This option is available only when the Static Boot Order option is enabled. Otherwise it is grayed out and unavailable.

Back to: [Advanced Boot Options – Boot Maintenance Manager Screen – Screen map](#)

6.2 Legacy CDROM Order

The Legacy CDROM Order screen allows the user to control the order in which the BIOS attempts to boot from the Legacy CDROM drives installed in the system. This screen is only available when there is at least one CDROM device available in the system configuration and the Boot Mode options is chosen as Legacy.

Note: A USB attached CDROM device appears in this section. However, a USB key formatted as a CRDOM device does not; it is detected as a hard disk device and included in the Hard Disk Order screen.

To access this screen from the front page, select **Boot Maintenance Manager > Legacy CDROM Order**. Press the **<Esc>** key to return to the Boot Maintenance Manager screen.

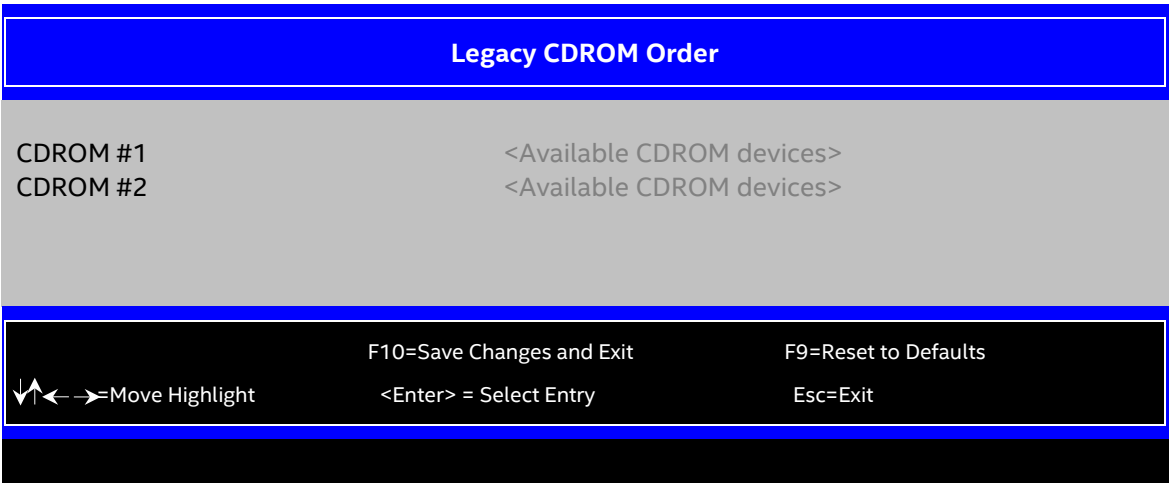


Figure 33. Legacy CDROM Order screen

- 1. CDROM #1
- 2. CDROM #2

Value: <Available CDROM devices>

Help Text: Set system boot order by selecting the boot option for this position.

Comments: Choose the order of booting among CDROM devices by choosing which available CDROM device should be in each position in the order.

Back to: [Legacy CDROM Order – Boot Maintenance Manager Screen – Screen map](#)

6.3 Legacy Hard Disk Order

The Legacy Hard Disk Order screen allows the user to control the order in which the BIOS attempts to boot from the hard disk drives installed in the system. This screen is only available when there is at least one hard disk device available in the system configuration and the Boot Mode option is set as Legacy. Note that a USB attached hard disk drive or a USB key device formatted as a hard disk appear in this section.

To access this screen from the front page, select **Boot Maintenance Manager > Legacy Hard Disk Order**. Press the **<Esc>** key to return to the Boot Maintenance Manager screen.

Note: The BCV devices that are storage devices are also grouped in the Legacy Hard Disk Order screen.

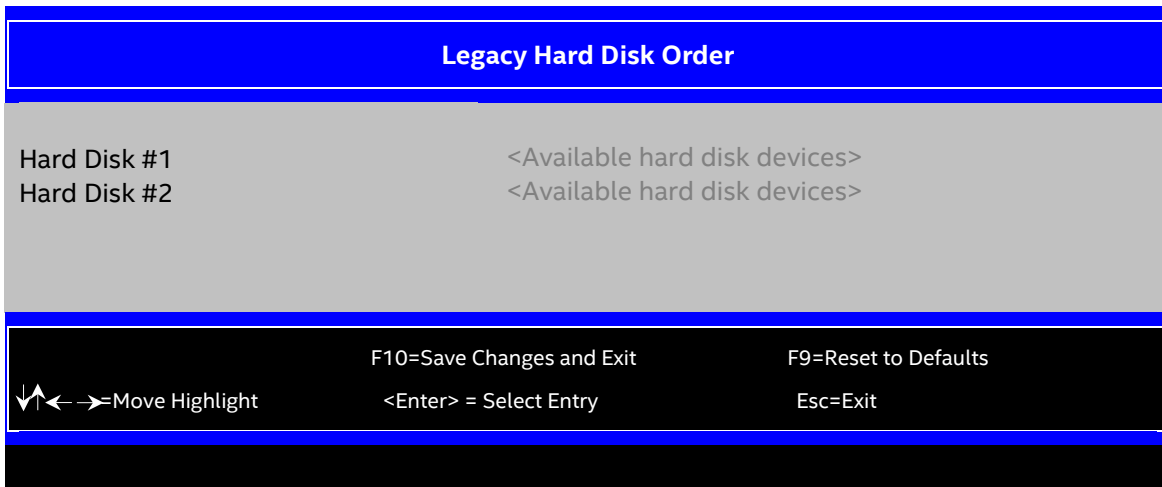


Figure 34. Legacy Hard Disk Order screen

1. Hard Disk #1
2. Hard Disk #2

Value: <Available hard disk devices>

Help Text: Set system boot order by selecting the boot option for this position.

Comments: Choose the order of booting among hard disk devices by choosing which available hard disk device should be in each position in the order.

Back to: [Legacy Hard Disk Order – Boot Maintenance Manager Screen – Screen map](#)

6.4 Legacy Floppy Order

The Legacy Floppy Order screen allows the user to control the order in which the BIOS attempts to boot from the legacy floppy disk drives installed in the system. This screen is only available when there is at least one floppy disk (diskette) device available in the system configuration and the Boot Mode option is set as Legacy. Note that a USB attached diskette drive or a USB key device formatted as a diskette drive appear in this section.

To access this screen from the front page, select **Boot Maintenance Manager > Legacy Floppy Order**. Press the **<Esc>** key to return to the Boot Maintenance Manager screen.

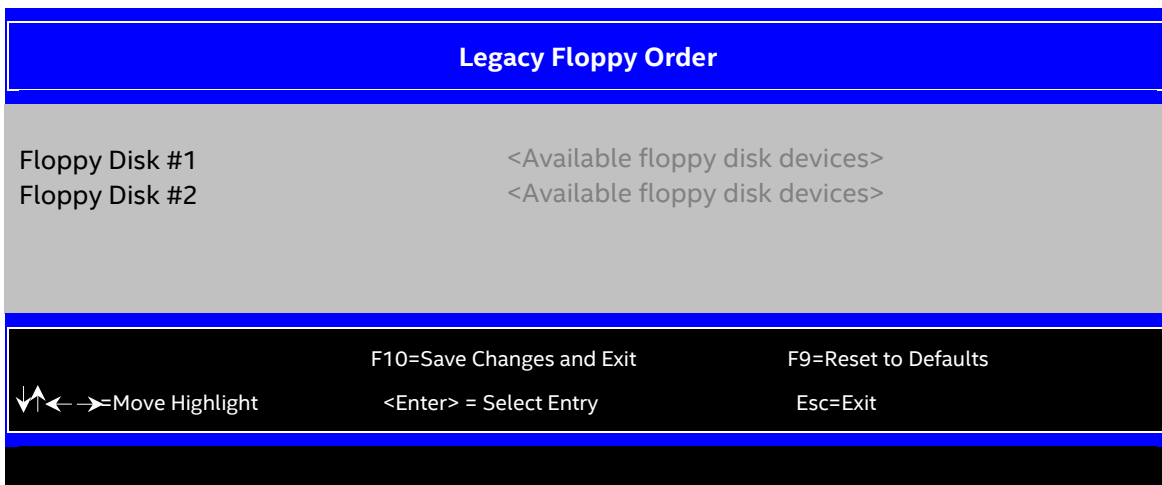


Figure 35. Legacy Floppy Order screen

1. Floppy Disk #1**2. Floppy Disk #2**

Value: <Available floppy disk devices>

Help Text: Set system boot order by selecting the boot option for this position.

Comments: Choose the order of booting among floppy disk devices by choosing which available floppy disk device should be in each position in the order.

Back to: [Legacy Floppy Order – Boot Maintenance Manager Screen – Screen map](#)

6.5 Legacy Network Device Order

The Legacy Network Device Order screen allows the user to control the order in which the BIOS attempts to boot from the network bootable devices installed in the system. This screen is only available when there is at least one network bootable device available in the system configuration and the Boot Mode options is set as Legacy.

To access this screen from the front page, select **Boot Maintenance Manager > Legacy Network Device Order**. Press the <Esc> key to return to the Boot Maintenance Manager screen.

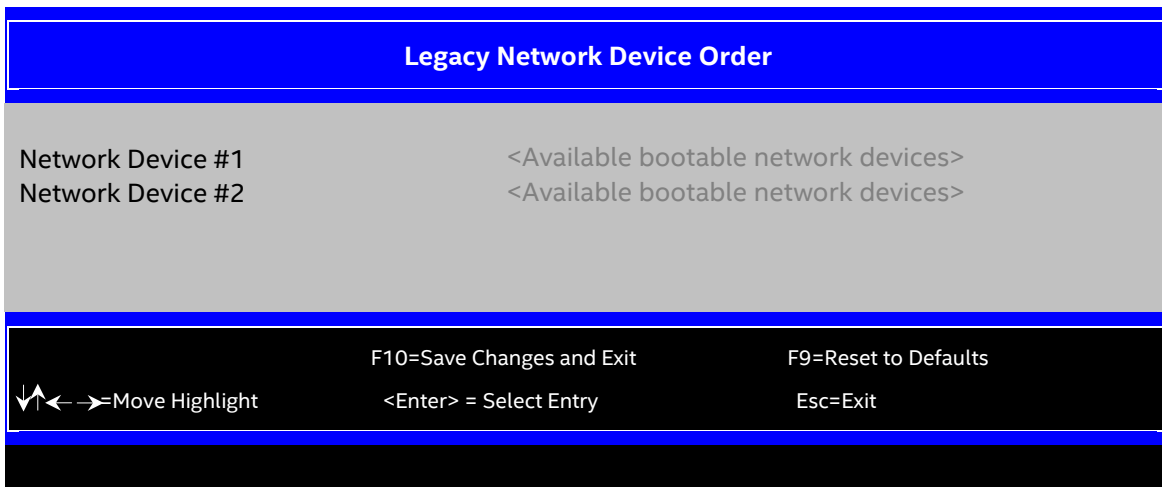


Figure 36. Legacy Network Device Order screen

1. Network Device #1**2. Network Device #2**

Value: <Available bootable network devices>

Help Text: Set system boot order by selecting the boot option for this position.

Comments: Choose the order of booting among network devices by choosing which available network device should be in each position in the order.

Back to: [Legacy Network Device Order – Boot Maintenance Manager Screen – Screen map](#)

6.6 Legacy BEV Device Order

The Legacy BEV Device Order screen allows the user to control the order in which the BIOS attempts to boot from the BEV devices installed in the system. This screen is only available when there is at least one BEV device available in the system configuration and the Boot Mode options is set as Legacy.

To access this screen from the front page, select **Boot Maintenance Manager > Legacy BEV Device Order**. Press the **<Esc>** key to return to the Boot Maintenance Manager screen.

Legacy BEV Device Order		
BEV Device #1	<Available BEV devices>	
BEV Device #2	<Available BEV devices>	
<div> <div> ↓↑←→Move Highlight </div> <div> F10=Save Changes and Exit <Enter> = Select Entry </div> <div> F9=Reset to Defaults Esc=Exit </div> </div>		

Figure 37. Legacy BEV Device Order screen

1. BEV Device #1

2. BEV Device #2

Value: <Available BEV devices>

Help Text: Set system boot order by selecting the boot option for this position.

Comments: Choose the order of booting among BEV devices by choosing which available BEV device should be in each position in the order.

Back to: [Legacy BEV Device Order– Boot Maintenance Manager Screen – Screen map](#)

6.7 Add EFI Boot Option

The Add EFI Boot Option screen allows the user to add an EFI boot option to the boot order. The Internal EFI Shell boot option is permanent and cannot be added or deleted.

To access this screen from the front page, select **Boot Maintenance Manager > Add EFI Boot Option**. Press the **<Esc>** key to return to the Boot Maintenance Manager screen.

Add EFI Boot Option		
EFI Boot Option to be selected		
<div> <div> ↓↑←→Move Highlight </div> <div> F10=Save Changes and Exit <Enter> = Select Entry </div> <div> F9=Reset to Defaults Esc=Exit </div> </div>		

Figure 38. Add EFI Boot Option screen

1. EFI Boot Option to be selected

Value: None

Help Text: None

Comments: *Selection only.* This lists current EFI devices paths enumerated by the BIOS during the POST to select the EFI Boot Option.

Back to: [Add EFI Boot Option– Boot Maintenance Manager Screen – Screen map](#)

6.8 Delete EFI Boot Option

The Delete EFI Boot Option screen allows the user to remove an EFI boot option from the boot order. The Internal EFI Shell boot option is not listed, since it is permanent and cannot be added or deleted.

To access this screen from the front page, select **Boot Maintenance Manager > Delete EFI Boot Option**. Press the **<Esc>** key to return to the Boot Maintenance Manager screen.

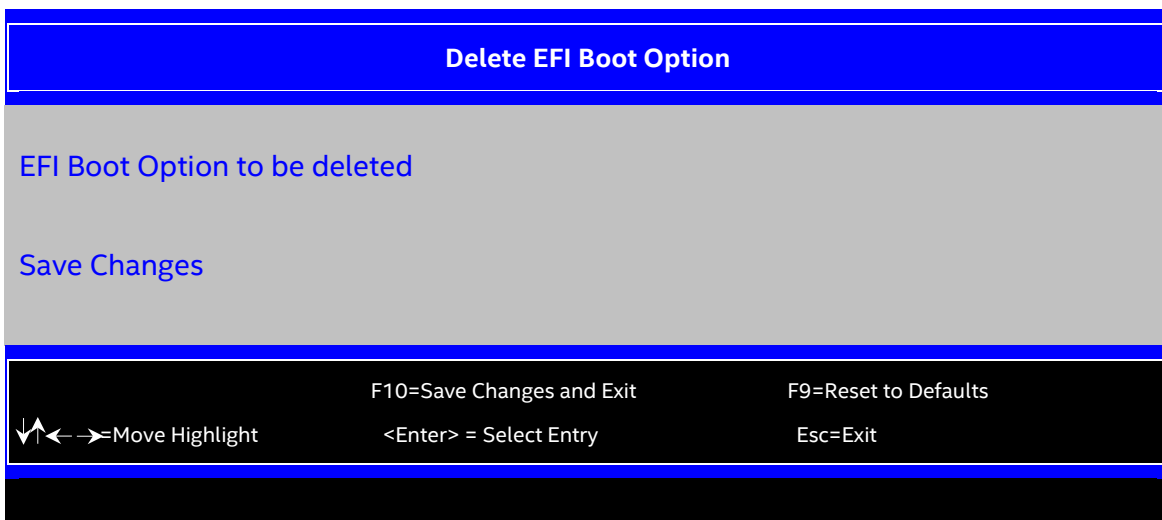


Figure 39. Delete EFI Boot Option screen

1. EFI Boot Option to be deleted

Value: [Checkbox]

Help Text: Select one to delete.

Comments: Use the checkbox to select the EFI boot option to be deleted. This does not allow a user to delete the EFI shell.

Back to: [Delete EFI Boot Option– Boot Maintenance Manager Screen – Screen map](#)

6.9 Change Boot Order

The Change Boot Order screen allows the user to configure the desired order of legacy or UEFI boot devices in which the boot device is to be tried sequentially.

To access this screen from the front page, select **Boot Maintenance Manager > Delete EFI Boot Option**. Press the **<Esc>** key to return to the Boot Maintenance Manager screen.

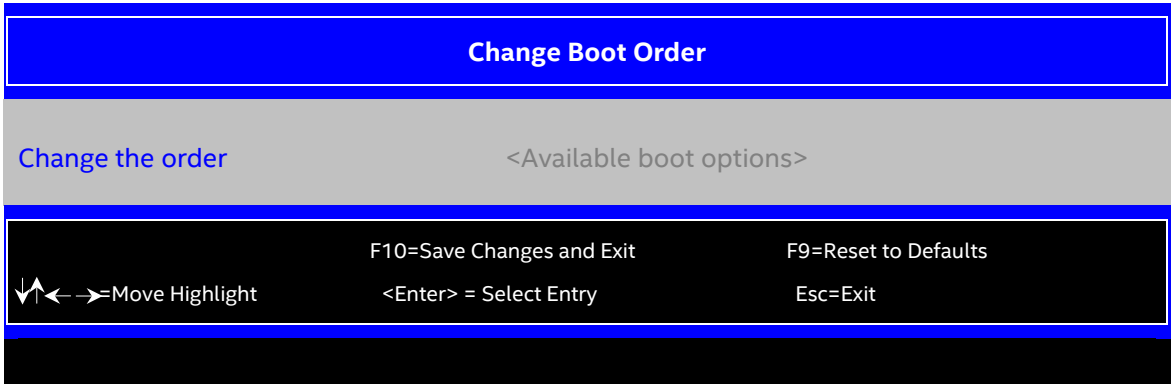


Figure 40. Change Boot Order screen

1. Change the order

- Value: <Available boot options>
- Help Text: Choose the boot order of booting Devices. Use [+] or [-] key to move up/down the selected field.
- Comments: None
- Back to: [Change Boot Order– Boot Maintenance Manager Screen – Screen map](#)

7. Boot Manager Screen

The Boot Manager screen allows the user to view a list of devices available for booting and to select a boot device for immediately booting the system. There is no predetermined order for listing bootable devices. They are simply listed in order of discovery.

Regardless of whether any other bootable devices are available, the Internal EFI Shell option is always available.

Note: This list is not in order according to the system boot option order. Reordering boot devices or even removing them completely from the boot order has no effect on the Boot Manager screen.



Figure 41. Boot Manager Screen

1. Launch EFI Shell

Value: None

Help Text: Select this option to boot now.
 Note: This list is not the system boot option order. Use the Boot Maintenance Manager menu to view and configure the system boot option order.

Comments: The EFI shell is always present in the list of bootable devices.

Back to: [Boot Manager Screen – Screen map](#)

2. <Boot device #1>

3. <Boot device #2>

4. <Boot device #n>

Value: None

Help Text: Select this option to boot now.





Note: This list is not the system boot option order. Use the Boot Maintenance Manager menu to view and configure the system boot option order.

Comments: These are names of bootable devices discovered in the system. The system user can choose any of them from which to initiate a one-time boot; booting from any device in this list does not permanently affect the defined system boot order.

These bootable devices are not displayed in any specified order, particularly not in the system boot order established by the Boot Maintenance Manager screen. This is just a list of bootable devices in the order in which they were enumerated.

Back to: [Boot Manager Screen – Screen map](#)

Boot Manager			
ERROR CODE	SEVERITY	INSTANCE	DESCRIPTION
<Post code>	<Major/Minor>	<Instance #>	<Description>
5224	Major	N/A	This is an example. The description is shown in the help area.

Move Highlight

F10=Save Changes and Exit

F9=Reset to Defaults

<Enter> = Select Entry

Esc=Exit

1. ERROR CODE

Back to: [Error Manager Screen – Screen map](#)

Back to: [Error Manager Screen – Screen map](#)

3. INSTANCE

Value: <Depends on error code>

Help Text: N/A

Comments: Where applicable, this field shows a value indicating which one of a group of components was responsible for generating the POST error code that is being reported.

Back to: [Error Manager Screen](#) – [Screen map](#)

4. DESCRIPTION

Value: N/A

Help Text: <Description of POST error code>

Comments: This is a description of the meaning of the POST error code that is being reported. This text appears in the screen space that is usually reserved for help messages.

Back to: [Error Manager Screen](#) – [Screen map](#)

9. Save & Exit Screen

The Save &Exit screen allows the user to choose whether to save or discard the configuration changes made on other setup screens. It also allows the user to restore the BIOS settings to the factory defaults or to save or restore them to a set of user-defined default values. If **Load Default Values** is selected, the factory default settings (noted in bold in the setup screen images) are applied. If **Load User Default Values** is selected, the system is restored to previously saved user default values.

Note: There is a legal disclaimer footnote at the bottom of the Save & Exit screen:

*Certain brands and names may be claimed as the property of others.

This is reference to any instance in the setup screens where names belonging to other companies may appear. For example LSI* appears in setup in the context of mass storage RAID options.

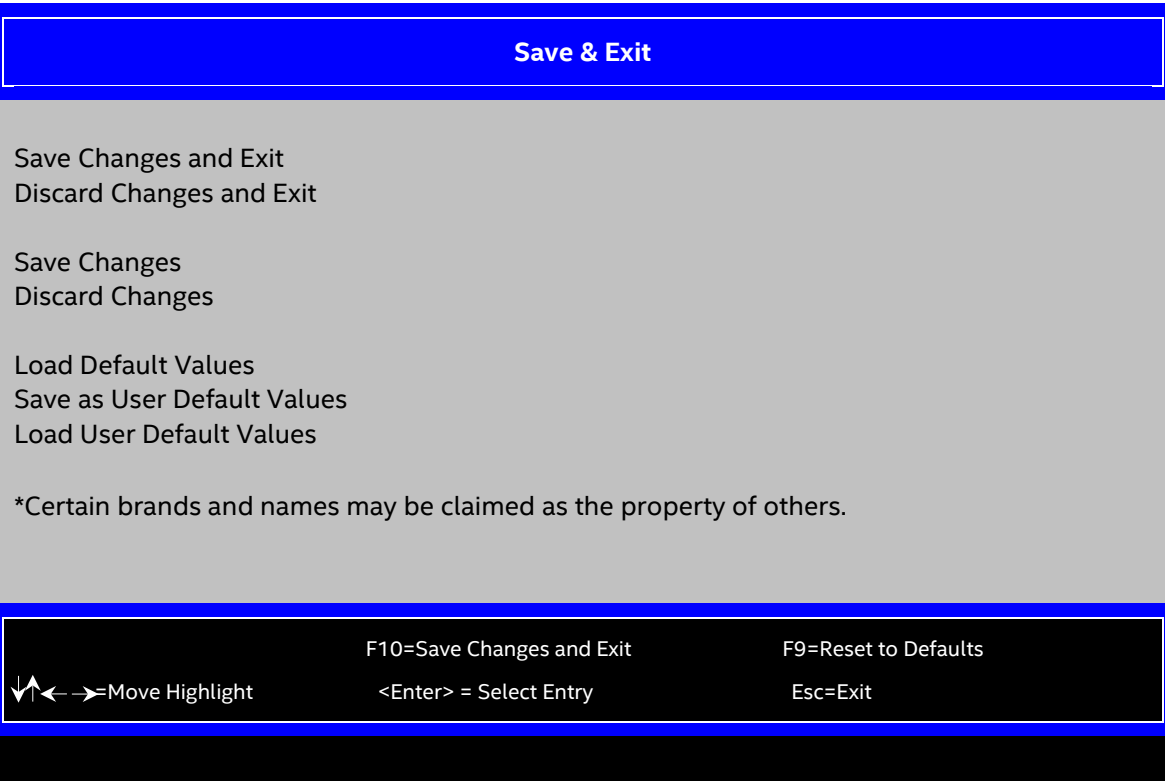


Figure 43. Save & Exit screen

1. Save Changes and Exit

- Value: None
- Help Text: Exit BIOS Setup Utility after saving changes. The system will reboot if required.
- Comments: *Selection only.* Select this line and press the **<Enter>** key to exit setup with any changes in BIOS settings saved. If there have been no changes made in the settings, the BIOS resumes executing POST.
- If changes have been made in BIOS settings, a confirmation pop-up appears. If the Save Changes and Exit action is positively confirmed, any persistent changes are applied and saved to the BIOS settings in non-volatile RAM (NVRAM) storage and the system reboots, if

necessary (which is normally the case). If the Save Changes and Exit action is not confirmed, the BIOS resumes executing setup.

The **<F10>** function key may also be used from any screen in setup to initiate a Save Changes and Exit action.

Back to: [Save & Exit Screen – Screen map](#)

2. Discard Changes and Exit

Value: None

Help Text: Exit BIOS Setup Utility without saving changes.

Comments: *Selection only.* Select this line and press the **<Enter>** key to exit setup without saving any changes in BIOS settings. If there have been no changes made in the settings, the BIOS resumes executing POST.

If changes have been made in BIOS settings, a confirmation pop-up appears. If the Discard Changes and Exit action is positively confirmed, all pending changes are discarded and the BIOS resumes executing POST. If the Discard Changes and Exit action is not confirmed, the BIOS resumes executing setup without discarding any changes.

Back to: [Save & Exit Screen – Screen map](#)

3. Save Changes

Value: None

Help Text: Save Changes made so far to any of the setup options.

Comments: *Selection only.* Select this line and press the **<Enter>** key to save any pending changes in BIOS settings. If there have been no changes made in the settings, the BIOS resumes executing POST.

Also, the user should be aware that most changes require a reboot to become active. If changes have been made and saved without exiting setup, the system should be rebooted later even if no additional changes are made.

Back to: [Save & Exit Screen – Screen map](#)

4. Discard Changes

Value: None

Help Text: Discard Changes made so far to any of the setup options.

Comments: *Selection only.* Select this line and press the **<Enter>** key to discard any pending unsaved changes in BIOS settings. If there have been no changes made in the settings, the BIOS resumes executing POST.

If changes have been made in BIOS settings and not yet saved, a confirmation pop-up appears. If the Discard Changes action is positively confirmed, all pending changes are discarded and the BIOS resumes executing POST. If the Discard Changes action is not confirmed, the BIOS resumes executing setup without discarding pending changes.

Back to: [Save & Exit Screen – Screen map](#)

5. Load Default Values

Value: None

Help Text: Load Defaults Values for all the setup options.

Comments: *Selection only.* Select this line and press the **<Enter>** key to load default values for all BIOS settings. These are the initial factory settings (“failsafe” settings) for all BIOS parameters.

There is a confirmation popup to verify that the user really meant to take this action.

After initializing all BIOS settings to default values, the BIOS resumes executing setup, so the user may make additional changes in the BIOS settings if necessary (for example, boot order) before doing a Save Changes and Exit action with a reboot to make the default settings take effect, including any changes made after loading the defaults.

The **<F9>** function key may also be used from any screen in setup to initiate a Load Default Values action.

Back to: [Save & Exit Screen – Screen map](#)

6. Save as User Default Values

Value: None

Help Text: Save the changes made so far as User Default Values.

Comments: *Selection only.* Select this line and press the **<Enter>** key to save the current state of the settings for all BIOS parameters as a customized set of user default values.

These are a user-determined set of BIOS default settings that can be used as an alternative instead of the initial factory settings (“failsafe” settings) for all BIOS parameters.

By changing the BIOS settings to user-preferred values and then using this operation to save them as user default values, that version of BIOS settings can be restored at any time by using the following Load User Default Values operation.

There is a confirmation popup to verify that the user really intended to take this action.

Loading the factory default values does not affect the user default values. They remain set to whatever values they were last saved as.

Back to: [Save & Exit Screen – Screen map](#)

7. Load User Default Values

Value: None

Help Text: Load the User Default Values to all the setup options.

Comments: *Selection only.* Select this line and press the **<Enter>** key to load user default values for all BIOS settings. These are user-customized BIOS default settings for all BIOS parameters previously established by doing a Save User Defaults action.

There is a confirmation popup to verify that the user really intended to take this action.

Back to: [Save & Exit Screen – Screen map](#)

Appendix A. Glossary

Term	Definition
AER	Advanced Error Reporting
ACPI	Advanced Configuration and Power Interface
AHCI	Advanced Host Controller Interface
BEV	Boot Entry Vector
BIOS	Basic Input/Output System
BMC	Baseboard Management Controller
CATERR	Catastrophic Error
CE	Correctable Error
cTDP	Configurable TDP
CTS	Clear to Send
DDR	Double Data Rate
DHCP	Dynamic Host Configuration Protocol
DIMM	Dual In-line Memory Module
DMI	Direct Media Interface – connection from the processor to the PCH
DMN	Dedicated Server Management NIC
ECC	Error Correction Code
EFI	Extensible Firmware Interface
EPS	External Product Specification
FDD	Floppy Disk Drive
FRB-2	Fault Resistant Booting level 2
HDD	Hard Disk Drive
HII	Human Interface Infrastructure
IIO	Integrated I/O
IPMI	Intelligent Platform Management Interface
IRQ	Interrupt Request
ISA	Industry Standard Architecture
iSCSI	Internet Small Computer Systems Interface
IVR	Integrated Voltage Regulator
LAN	Local Area Network
MCDRAM	Multi-Channel RAM
Intel® ME	Intel® Management Engine
MT/s	MegaTransfers per second
NIC	Network Interface Card
NMI	Non-Maskable Interrupt
NVRAM	Non-Volatile RAM
OpROM	Option ROM (also OproM)
OS	Operating System
PCH	Platform Controller Hub
PCI	Peripheral Component Interconnect
PCIe*	PCI Express*
PERR	Parity Error
POST	Power On Self-Test
PXE	Pre-Execution Environment
RAID	Redundant Array of Independent Disks

Intel® Server Board S7200AP Family BIOS Setup Specification

RAS	Reliability, Availability, and Serviceability
RTS	Request to Send
SATA	Serial ATA
SBO	Static Boot Order
SCU	Storage Control Unit
SEL	System Event Log
SERR	System Error
SFO	Sparing Fail Over
SMRAM	System Management RAM
SOL	Serial Over LAN
TDP	Thermal Design Power
TPM	Trusted Platform Module
UEFI	Unified Extensible Firmware Interface
Intel® VT	Intel® Virtualization Technology
Intel® VT-d	Intel® Virtualization Technology (Intel® VT) for Directed I/O
WHEA	Windows* Hardware Error Architecture