Intel® System Configuration Utility

User Guide

Syscfg Version 5.0

November 2009

Order Number: E12458 - 012

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1 Introduction

The Intel® System Configuration Utility (Syscfg) is a command-line utility that can be used to save and restore BIOS and firmware settings to a file or to set and display individual settings. This User Guide provides a command reference for version 4.0.x and 5.0.x of the Syscfg. It provides an overview of the features of the module and instructions for configuring the BIOS and management firmware on the following Intel® Server Boards:

- Intel® S5000 Series Server Boards (S5000PAL, S5000PSL, S5000VSA, S5000VCL, S5000PHB0)
- Intel® S3000 Series Server Boards (S3000AHLX, S3000AH, S3000AHV)
- Intel® Server Board X38MLST
- Intel® Server Board S3200SH
- Intel® Server Board S5400SF
- Intel® Server Board S7000FC4UR
- Intel® S5500 Series Server Boards (S5520HC, S5500HCV, S5500SC, S5520UR, S5500BC, S5520WB, S5520WBV, S5520SC)
- Intel® S3420GP Series Server Boards (S3420GP-LX, S3420GP-LC and S3420GP-V)

Note: This User Guide does not cover the ROM DOS version of the System Configuration Utility (v2.0.10). In addition, not all BIOS or management firmware settings can be set using this utility. Refer to the Product Guide for your server board for a complete list of BIOS settings. Refer to *IPMI--Intelligent Platform Management Interface Specification, Second Generation, v2.0* for information on the standard management firmware settings.

1.1 Operating Systems Supported

This version of the utility supports the Operating System versions listed in the following table. Refer to the Tested Hardware and Operating System List for your server board to determine which operating systems are supported on your server board:

Table 1. Operating Systems Supported

Platforms	System Configuration Utility Version	Operating Systems/Preboot environment supported
S5000PAL, S5000PSL, S5000VSA, S5000VCL, SC5400RA	2.0.10	WinPE* version 2005 (Released with Microsoft Windows* Server 2003, Service Pack 1 [SP1] and Windows XP*, Service Pack 2 [SP2]) Red Hat Enterprise Linux* AS 3 (32- bit) Red Hat Enterprise Linux* AS 4 (32-bit and em64T) ROM-DOS 6.22
S5000PHB0	2.0.10	ROM-DOS 6.22 Red Hat Enterprise Linux* AS 3 (32- bit) Red Hat Enterprise Linux* AS 4 (32-bit)
S3000AHLX, S3000AH, S3000AHV	2.0.10	Red Hat Enterprise Linux *AS 4 (32-bit and em64T) ROM-DOS 6.22 WinPE* version 2005 (Released with Microsoft Windows* Server 2003, Service Pack 1 [SP1] and Windows XP*, Service Pack 2 [SP2])
S7000FC4UR	4.0.2	EFI version 1.10 WinPE* version 2005 (Released with Microsoft Windows* Server 2003, Service Pack 1 [SP1] and Windows XP*, Service Pack 2 [SP2]) Windows* Server Enterprise 2003 (32 bit) Red Hat Enterprise Linux* AS 4 U4 (32 bit) Red Hat Enterprise Linux* AS 4 (em64T) Red Hat Enterprise Linux* AS 5 (32

Platforms	System Configuration Utility Version	Operating Systems/Preboot environment supported
		bit) Red Hat Enterprise Linux* AS 5 (em64T) SUSE Linux* Enterprise Server 9 (32 bit) SUSE Linux* Enterprise Server 9 (em64T) SUSE Linux* Enterprise Server 10 (32 bit) SUSE Linux* Enterprise Server 10 (em64T)
S5400SF	4.0.2	WinPE* version 2005 (Released with Microsoft Windows* Server 2003, Service Pack 1 [SP1] and Windows XP*, Service Pack 2 [SP2]) MSDOS 6.22 EFI 1.10 Red Hat Enterprise Linux* AS 5 (32 bit) Red Hat Enterprise Linux* AS 5 (64 bit) SUSE Linux* Enterprise Server 10 (32 bit) SUSE Linux* Enterprise Server 10 (em64T)
X38MLST	4.0.2	EFI 1.10 WinPE* version 2005 (Released with Microsoft Windows* Server 2003, Service Pack 1 [SP1] and Windows XP*, Service Pack 2 [SP2]) Red Hat Enterprise Linux* AS 5 (32 bit) Red Hat Enterprise Linux* AS 5 (64 bit) SUSE Linux* Enterprise Server 10 (32 bit) SUSE Linux* Enterprise Server 10 (em64T)
S3200	4.0.2	EFI 1.10 WinPE* version 2005 (Released with Microsoft Windows* Server 2003, Service Pack 1 [SP1] and Windows XP*, Service Pack 2 [SP2]) Red Hat Enterprise Linux* AS 5 (32 bit)

Platforms	System Configuration Utility Version	Operating Systems/Preboot environment supported
		Red Hat Enterprise Linux* AS 5 (64 bit) SUSE Linux* Enterprise Server 10 (32 bit) SUSE Linux* Enterprise Server 10 (em64T)
S5000AL and SR1530AH platform series	4.0.2	Red Hat Enterprise Linux* 4, Update 4 (32-bit x86 Edition only) Windows* Server 2003 SP1 (32-bit x86 Edition only) Windows* Pre-installation Environment 2005 (32-bit x86 Edition only)
S5520HC, S5500HCV, S5500SC, S5520UR, S5500BC, S5520WB, S5520WBV, S5520SC	5.0.1	Windows* Server 2003 Enterprise (32bit) Windows* Server 2003 Enterprise (EM64T) Windows* Server 2008 Enterprise (32bit) Windows* Server 2008 Enterprise (EM64T) Windows* XP SP3 (32 bit) Windows PE * 2004 (1.5) - Built from Windows XP* Professional with Service Pack 2 (SP2) Windows PE* 2005 (1.6) - Built from Windows* Server 2003 with Service Pack 1 (SP1). Windows PE* 2.0 - built from Windows Vista, 32 bit Windows PE* 2.1 - built from Windows Vista* SP1 or Windows* Server 2008, EM64T) Windows Vista SP1 (32 bit) Windows Vista SP1 (EM64T) RHEL5 Update 2 & 3 (32 bit) RHEL5 Update 2 & 3 (EM64T) SLES10 SP2 (32 bit) SLES10 SP2 (EM64T) SLES11 (32 bit) SLES11 (EM64T)
S3420GP (S3420GP-LX, S3420GP-LC and S3420GP-V)	5.0.1	Windows* Server 2003 Enterprise (32bit) Windows* Server 2003 Enterprise (EM64T)

Platforms	System Configuration Utility Version	Operating Systems/Preboot environment supported
		Windows* Server 2008 Enterprise (32bit) Windows* Server 2008 Enterprise (EM64T) Windows* XP SP3 (32 bit) Windows PE * 2004 (1.5) - Built from Windows XP* Professional with Service Pack 2 (SP2) Windows PE* 2005 (1.6) - Built from Windows* Server 2003 with Service Pack 1 (SP1). Windows PE* 2.0 - built from Windows Vista, 32 bit Windows PE* 2.1 - built from Windows Vista* SP1 or Windows* Server 2008, EM64T) Windows Vista SP1 (32 bit) Windows Vista SP1 (EM64T) RHEL5 Update 3 (32 bit) RHEL5 Update 3 (EM64T) SLES11 (32 bit) SLES11 (EM64T)

Note: SysCfg version or build may be different across different platforms. Please download the supported SysCfg version and build under your platform from support web site. Also please refer release notes for known issues on installation and usage.

1.2 Target Audience

This User Guide is intended for Original Equipment Manufacturers and those who are responsible for configuring the BIOS and Management Firmware on the Intel® Server Boards.

1.3 Related Documents

Following are the related documents:

- *IPMI--Intelligent Platform Management Interface Specification, Second Generation, v2.0* (available at support.intel.com)
- *Server Product Guides for BIOS Setup Options*
- *Intel® Server Configuration Utilities Deployment Procedure for Windows PE 2005**

1.4 Terminology

The following table lists the terminology used in this document and the description:

Table 2. Terminology

Term	Definition
ACPI	Advanced Configuration and Power Interface
AES	Advanced Encryption Standard
AMB	Advanced Memory Buffer (there is an AMB on each FBDIMM)
APIC	Advanced Programmable Interrupt Controller
ARP	Address Resolution Protocol
ASF	Alert Standards Forum
ASIC	Application specific integrated circuit
BIST	Built-in self test
BMC	Baseboard management controller
Bridge	Circuitry connecting one computer bus to another, allowing an agent on one to access the other.
BSP	Bootstrap processor
CBC	Chassis bridge controller. A microcontroller connected to one or more other CBCs. Together they bridge the IPMB buses of multiple chassis.
CLI	Command-line interface
CLTT	Closed-loop thermal throttling (memory throttling mode)
CMOS	In terms of this specification, this describes the PC-AT compatible region of battery-backed 128 bytes of memory on the server board.
CSR	Control and status register
D-cache	Data cache. Processor-local cache dedicated for memory locations explicitly loaded and stored by running code.
DHCP	Dynamic Host Configuration Protocol
DIB	Device Information Block
DPC	Direct Platform Control
EEPROM	Electrically erasable programmable read-only memory
EMP	Emergency management port
FML	Fast management link
FNI	Fast management link network interface
FRB	Fault resilient booting
FRU	Field replaceable unit
FSB	Front side bus
FTM	Firmware transfer mode
GPIO	General-purpose input/output
HSBP	Hot-swap backplane

Term	Definition
HSC	Hot-swap controller
I-cache	Instruction cache. Processor-local cache dedicated for memory locations retrieved through instruction fetch operations.
I2C	Inter-integrated circuit bus
IA	Intel® architecture
IBF	Input buffer
ICH	I/O controller hub
IERR	Internal error
INIT	Initialization signal
IPMB	Intelligent Platform Management Bus
IPMI	Intelligent Platform Management Interface
ITP	In-target probe
KCS	Keyboard controller style
KT	Keyboard text
KVM	Keyboard, video, mouse
LAN	Local area network
LCD	Liquid crystal display
LPC	Low pin count
LUN	Logical unit number
MAC	Media Access Control
MD5	Message Digest 5. A hashing algorithm that provides higher security than MD2.
MIB	Modular information block. A descriptive text translation of a PET event, contained in a MIB file for use by an SNMP agent hen decoding SEL entries.
ms	Millisecond
MUX	Multiplexer
NIC	Network interface card
NMI	Non-maskable interrupt
OBF	Output buffer
OEM	Original equipment manufacturer
OLTT	Open-loop thermal throttling (memory throttling mode)
PCI	Peripheral Component Interconnect
PECI	Platform Environmental Control Interface
PEF	Platform event filtering
PET	Platform event trap
PIA	Platform information area
PLD	Programmable logic device
POST	Power-on self-test
PROM	Programmable read-only memory

Term	Definition
PSMI	Power Supply Management Interface
PWM	Pulse Width Modulation. The mechanism used to control the speed of system fans.
RAM	Random Access Memory
RAS	Reliability, availability, and serviceability
RC4	Rivest Cipher 4. A stream cipher designed by Rivest for RSA data security, now RSA security. It is a variable key-size stream cipher with byte-oriented operations. The algorithm is based on a random permutation.
RMCP+	Remote Management Control Protocol
ROM	Read-only memory
RTC	Real-time clock
SCI	System Control Interrupt. A system interrupt used by hardware to notify the operating system of ACPI events.
SDR	Sensor data record
SDRAM	Synchronous dynamic random access memory
SEL	System event log
SHA1	Secure Hash Algorithm 1
SMBus	A two-wire interface based on the I^2C protocol. The SMBus is a low-speed bus that provides positive addressing for devices and bus arbitration.
SMI	Server Management Interrupt. SMI is the highest priority non-maskable interrupt.
SMM	Server management mode
SMS	Server management software
SNMP	Simple Network Management Protocol
SOL	Serial-over-LAN
SPT	Straight pass-through
SRAM	Static random access memory
UART	Universal asynchronous receiver and transmitter
UDP	User Datagram Protocol
UHCI	Universal Host Controller Interface
VLAN	Virtual local area network

1.5 Support Information

World Wide Web

http://support.intel.com/support/

For an updated support contact list, see *http://www.intel.com/support/9089.htm/*

2 Using the Intel® System Configuration Utility

Syscfg is a command-line scriptable utility that can be used to save and restore BIOS and firmware settings to a file, or to set and display individual BIOS settings. Syscfg may be used in a script to automate the process of configuring multiple servers. Few commands may not be supported on all platforms due to limitations in the platform firmware /BIOS. The description of each command will describe any limitations.

The general syntax is:

syscfg [{/|-}*command* [*arguments*]] [...*next_command* [*arguments*]]

Multiple commands may be specified on a single line unless otherwise noted in the Command Reference description. The maximum line length is 127 characters.

Note: This version of the utility can be run from EFI, Linux*, Windows* command prompt, and Windows* Pre-installation Environment. Some platforms may not support all the operating environments for this utility.

3 Quick Start Instructions

This section details the quick start instructions for configurations.

3.1 Installation

A. Linux

a. Boot into Linux unzip the "SyscfgVXXX_BuildXX_RHEL.zip" or "SyscfgVXXX_BuildXX_SUSE.zip",file into a folder on your hard drive. After unzip "SysCfg_RHEL" or "SysCfg_SUSE" folder will be generated

The syscfg directory will have the following files.

- install-smi-drv
- smi-2.0.2-1.i386.rpm
- ReleaseNotes.txt
- smi.c
- smi.h
- Makefile-2.4
- Makefile-2.6
- syscfg
- detectOpenIPMI
- ENUS/

b. Run the 'install-smi-drv' script to install the 'smi' rpm.

c. To uninstall SMI driver run the following command manually
- rpm -e smi

B. UEFI

a. Boot into EFI and copy the following files:

- biosconfig.efi
- BootDevice.efi
- fwadvcfg.efi
- iniparse.efi
- ipmi.efi
- lanconfig.efi
- pefconfig.efi
- powerconfig.efi
- serialconfig.efi
- solconfig.efi
- syscfg.efi
- systemconfig.efi
- userconfig.efi

- bioscfg.str
- bootdev.str
- fwadvcfg.str
- HelpBmc.str
- HelpMbmc.str
- lancfg.str
- pefcfg.str
- powercfg.str
- sercfg.str
- solcfg.str
- syscfg.str
- system.str
- usercfg.str
- ReleaseNotes.txt

b. Set the syscfg path variable SYSCFG_PATH. e.g:- set SYSCFG_PATH fs0:\<syscfg_efi> where syscfg_efi is the folder containing all the files mentioned above.

c. Run 'syscfg' commands from the location where the files are copied.

d. To uninstall SYSCFG run the following commands manually

-Delete the contents of the directory where the utility is installed.

C. Windows/WinPE

a. Copy the "SyscfgVXXX_BuildXX_Win.ZIP" or "SyscfgVXXX_BuildXX_WinPE21.ZIP" file into your local directory (e.g. C:\syscfg)

b. Unzip the folder

c. Three subfolders will be seen under c:\syscfg folder. Those are -

- InstallationIA32
- InstallationEM64T
- SysCfgRelease

d. Only for WinPE2.1 OS use WinPE2.1 supported syscfg binaries (i.e. SyscfgVXXX_BuildXX_WinPE21) this package will have following folders

- InstallationEM64T
- SysCfgRelease

e. For 32bit platforms, go to InstallationIA32 folder from the command prompt, run the Install.Cmd. For EM64T platforms, go to InstallationEM64T folder from the command prompt, run the Install.Cmd

f. The above command will install the respective drivers to be used by SysCfg utility. For WinPE 1.5/1.6 driver installation is not required since the driver will be part of the WinPE OS image.

g. From the command prompt go to SysCfg Release folder and run the desired commands for the utility

h. To uninstall SYSCFG run the following commands manually

- Delete the contents of the directory where the utility is installed.
- Manually uninstall drivers from the Device manager

3.2 Saving a Configuration

From S55XX platform series the utility supports saving BIOS and FW settings both in binary and in text mode (from a text file, known as INI file). The advantage of using INI file is that you can modify and change the values of any of the settings available in the INI file.

To save the BIOS and firmware configuration to a file, do the following:

1. Boot to one of the supported Operating Systems on the target system.
2. Change directories to the location of the syscfg executable. (This location must be writable to allow you to save the system configuration.)
3. In Windows*, Windows Pre-installation Environment*, or EFI type: `syscfg /s` *filename*
   In Linux*, type: ./`syscfg /s` *filename*

When saving the settings to a file, you have the option to supply the file type (*scf* or *ini*). The binary file *filename*.scf or *filename*.ini will contain the saved configuration. You can use this file to restore the configuration on this target server or other servers using the /r command.

In the absence of a user defined file type the default type would be ‘SCF. So if you neither provide file type nor filename, the default filename will be syscfg,SCF

3.3 Restoring a Configuration

If you have already saved a configuration to a file, use the following procedure to restore the system to the saved configuration, or set the configuration on identical servers to the saved configuration.

From S55XX platform series the utility supports restoring BIOS and FW settings both in binary and in text mode (from a text file, known as INI file). Unlike restoring from a binary file, the advantage of using INI file is that you can modify and change the values of any of the settings available in the INI file. In this scenario, the INI file does not clone servers but provides a mechanism of configuring the same items with different values per your requirement.

Note: For restoring un-editable fields, section name headers and key names should not be edited or deleted from the INI file.

To restore a configuration, do the following:

1. Boot the system to one of the supported Operating Systems.
2. Change to the directory containing the syscfg executable. (The saved configuration file should also be located in this directory.)
3. To restore the saved BIOS settings in Windows*, Windows Pre-installation Environment*, or EFI, type: `syscfg /r` *filename.scf* `/b`
   In Linux*, type: `./syscfg /r` *filename.scf* `/b`

3.4 Displaying Syscfg Help

To display syscfg help, type: `syscfg /h`

3.5 Displaying Current BIOS and Firmware Versions

To display the current BIOS and firmware settings, type: `syscfg /i`

4 Using Commands

This section lists the Generic commands/switches, BIOS, and Firmware commands and their tasks.

4.1 Quick Reference to Sysconfig Commands (Generic, BIOS, and Firmware)

The following table lists all the Sysconfig commands classified --as generic, BIOS, and Firmware -- for your quick reference:

Generic Commands/ Switches	BIOS Commands	Firmware Commands				
		Channel Commands	LAN Commands	PEF Commands	Serial Commands	User Commands
/d Display /i Information /q Quiet Mode switch /r Restore /s Save	/bap BIOS Administrator Password /bbo BIOS Boot Order /bcr BIOS Console Redirection /bcs BIOS Configure Setting /bldfsBIOS Load Default Factory Settings /bpep BIOS POST Error Pause /bqb BIOS Quiet Boot /bup BIOS User Password /bvar This command creates a new UEFI variable /dt Date and Time	/c Channels /csel Clear SEL /eac email Alert Configuration /eae email Alert Enable /eam email Alert Map /h Help	/lac LAN Alert Configuration /lae LAN Alert Enable /lc LAN Configuration /le LAN Enable	/pefc PEF Configure /peff PEF Filter /pefp PEF Policy /prp Power Restore Policy /rbmc Reset BMC /rfs Restore firmware settings /rnm Reset Node Manager	/sc Serial Configuration /sds Serial Dial String /se Serial Enable /spc Serial Page Configuration /spe Serial Page Enable /sole Serial Over LAN Enable /te Terminal Enable	/u Users /ue User Enable /up User Privilege

4.2 Generic Commands/Switches

4.2.1 Information (/i)

syscfg /i [*filename*.**SCF**]

Filename	File name for a System Configuration File (.SCF) in the current working directory. If the filename is not specified, the command displays the BIOS and firmware versions of the current system.

Displays the BIOS and firmware versions of the system or the saved BIOS and firmware settings in a System Configuration File.

Examples:

```
syscfg /i
syscfg /i bd2.scf
```

4.2.2 Quiet (/q)

syscfg *options* **/q**

Options	Any other valid option. The /q switch must be at the end of the command line.
/q	Quiet Mode. This option prevents all output from the command.

Suppress all messages.

Example:

```
syscfg /r /f /b /q
```

4.2.3 Restore (/r)

syscfg /r [*filename**.SCF***] {**/f** | **/b** | **/f /b**}

Filename	Filename of the syscfg configuration file (.SCF) in the current working directory. If no filename is specified, the default filename syscfg.scf is used. The filename suffix must be .SCF.
/f	Restore the firmware settings. (See Appendix A for a list of the settings that are restored.)
/b	Restore the BIOS settings. (See Appendix A for a list of the settings that are restored.)

Restores the BIOS and firmware settings from a SCF file.

Examples:

```
syscfg /r /f /b
syscfg /r saved.scf /f
syscfg /r myscfg.scf /b /bap kwqt821
```

Notes:

- One or both of the /r and /f options are required.
- If the BIOS Administrator password is set, you must use the /bap command to enter the password.
- The static IP Address assigned by a DHCP server, the BIOS boot order, and other dynamic BIOS settings are not saved or restored.

4.2.4 Save (/s)

syscfg /s [*filename**.SCF***] {**/f** | **/b** | **/f /b**}

Filename	File name to be used for the syscfg configuration file (.SCF) in the current working directory. If no filename is specified, the default file name syscfg.scf is used. The filename suffix must be .SCF, or, if omitted, syscfg will add the .SCF suffix. The filename should consist of only alphanumeric characters.
/f	Save the firmware settings. (See Appendix A for a list of the settings that are saved.)
/b	Save the BIOS settings. (See Appendix A for a list of the settings that are saved.)

Saves the BIOS and firmware settings to a SCF file.

Example:

```
syscfg /s /f /b
syscfg /s saved.scf /f
```

From S55XX generation of platforms the Save process added additional functionality of saving the following BIOS and FW settings also into an editable (.INI) file format. This is typically a text file and will be dynamically generated depending on the user choice from the command line.

Notes:

- Save/Restore process following the INI file is not a means for exact cloning between the servers; it is a means to clone a subset of BIOS/FW configurable settings and a duplicating those settings in the deployed servers.
- Save and restore of Host IP, Subnet Mask, Default Gateway IP and Backup Gateway IP is not supported on S55XX and S3420GP platform series.

4.2.5 Display (/d)

syscfg /d {**CHANNEL** *Channel_ID* | **BIOS** | **BIOSSETTINGS** {{**group** *BIOS_Group_Name BIOS_Setting_Name* [*BIOS_Setting_Name*…] | [**individual**] *BIOS_Setting_Name* [*BIOS_Setting_Name*…] } | **LAN** *Channel_ID LAN_Alert_Destination_Index* | **SERIAL** *Channel_ID Dial_String_Index Page_Destination_Selector Dial_String_Selector* | **POWER** | **PEF** *Filter_Table_Index* [*Policy_Table_Index*] | **SOL** *Channel_ID*} | **USER** *User_ID* [*Channel_ID*] | **FWADVCFG** *Channel_ID* [*User_ID* [*SMTP_Configuration_Index*]] }

CHANNEL	Displays the BMC Channel configuration for the specified channel.
Channel_ID	IPMI Channel ID.
BIOS	Displays the current values of the BIOS settings that can be configured with this utility (except the Administrator and User passwords.)
BIOSSETTINGS	Displays values of a subset the BIOS settings. The arguments that follow this keyword are used to select the BIOS settings to display.
group	Selects the BIOS Settings based on the name of the group in BIOS Setup. If both group and individual keywords are omitted, the default is individual.
individual	Selects the individual BIOS Settings anywhere in BIOS Setup. If two or more settings have the same name, the first setting found in BIOS Setup is displayed.
BIOS_Group_Name	The name of the page in the BIOS Setup screen. Refer to the Technical Product Specification for your server board for the BIOS Setup screen names.
BIOS_Setting_Name	The name of the BIOS settings on the BIOS Setup screen. Refer to the Technical Product Specification for your server board for the BIOS Setup setting names.
LAN	Displays the BMC LAN channel configuration. The Operating System settings may be different.
SERIAL	Displays the Serial channel configuration for the BMC.
POWER	Displays the power restore policy.
PEF	Displays the Platform Event Filters.
SOL	Displays the Serial Over LAN settings.

USER	Displays the BMC user settings.
Channel_ID	IPMI Channel ID.
LAN_Alert_Destination_Index	Enter the LAN Alert Destination Index.
Dial_String_Index	Enter the Serial Modem Dial String Index.
Page_Destination_Selector	Enter the Page Destination Selector.
Dial_String_Selector	Enter the Dial String Selector.
Filter_Table_Index	Enter the Filter Table Index.
Policy_Table_Index	Enter the PEF Policy Table Index.
User_ID	Enter an integer between 1 and *n,* where *n* is the number of users supported by the platform for the BMC User ID. User ID 1 is the anonymous user (no password).
FWADVCFG	Displays the advanced firmware settings for the channel, users, and SMTP configuration.
Channel_ID	IPMI Channel ID.
User_ID	BMC User ID. When used with the FWADVCFG keyword, the configuration information is displayed for the user.
SMTP_Configuration_Index	Specifies the SMTP configuration in the firmware email alerting tables.

Displays the specified BMC and BIOS settings.

Note: The /d serial command is not supported on Intel® Server Boards X38MLST, S3200SH, S5500XX and S3420GP platform series.

Examples:

```
syscfg /d channel 1
syscfg /d lan 1 2
syscfg /d serial 1 2 3 4
syscfg /d pef 2 1
syscfg /d BIOSSETTINGS individual "Quiet Boot"
syscfg /d BIOSSETTINGS "Set Fan Profile"
syscfg /d BIOSSETTINGS group "Main" "Quiet Boot" "POST Error Pause"
syscfg /d biossettings group "system acoustics and performance configuration" "Set
throttling mode" "Altitude" "Set fan profile"
syscfg /d FWADVCFG 3 2 1
```

4.3 BIOS Commands

This section lists the BIOS Commands.

4.3.1 BIOS Administrator Password (/bap)

syscfg /bap {*old_password* | **""**} [*new_password* | **""**]

old_password *new_password*	The maximum length of the password is seven characters. The password cannot have characters other than alphanumeric (a-z, A-Z, 0-9) and is case insensitive. Use two double quotes ("") to represent a null password.

Sets or clears the BIOS Administrator password. You must enter the old password, if set, or the null string if the Administrator password is currently not set, before entering the new password. Enter a null string for the new password to clear the password. The Administrator password controls access to all BIOS Setup fields including the ability to clear the User password. If only one password (Administrator or User) is set, then this password is required to enter Setup. If you set or change the BIOS Administrator password, you cannot change any other BIOS option using syscfg except the BIOS User and Administrator passwords. You may combine the /bap and /bup commands to set both the BIOS Administrator and User passwords at the same time.

Refer to the *Product Guide* for your Intel® Server Board for more information on BIOS Setup options.

Examples:

```
syscfg /bap "" kwm93a3
syscfg /bap kwm93a9 lqts284
syscfg /bap "" lqts284 /bup "" kwm93a3
```

Note: The Set BIOS User Password (/bup) option (described in the following section) can only be used if system has a valid Administrator password set. Clearing the BIOS Administrator password will also clear the User password.

4.3.2 BIOS Boot Order (/bbo)

syscfg /bbo [*device_number* [*device_number* [...]]]

device_number	The current ordinal number of the BIOS boot device (1 is the first device, 2 is the second device, and so on.). To change the order, specify an order for the device numbers (for example, if you specify "2 1 4 3" then the second boot device will be the first boot device after the command is executed.

Refer to the *Product Guide* for your Intel® Server Board for more information on BIOS Setup options.

Display or set the BIOS boot order.

Examples:

```
syscfg /bbo
   1: PS-SONY CD-ROM CDU5221
   2: 1st floppy drive
   3: PM-WDC WD400BB-23FRA0
   4: EFI Boot Manager
syscfg /bbo 2 1 3 4
```

Starting from S55xx series of platforms, the "/bbo" switch will display elaborate information of all boot devices present in the system under different groups or classifications.

Display the detailed boot device information.

Examples:

```
syscfg /bbo
Number of boot devices = 7
============================
Boot Device Priority
--------------------
:: Local Hard Disk Boot Devices (HDD) ::
=======================================
1:  KingstonDataTraveler 2.01.00
2:  Secondary Master Hard Disk
3:  JetFlashTranscend 8GB   8.07
:: CD/DVD Boot Devices (DVD) ::
================================
1:  Primary Master CD-ROM
:: Network Boot Devices (NW) ::
================================
1:  IBA GE Slot 0100 v1327
2:  IBA GE Slot 0101 v1327
:: EFI Boot Devices (EFI) ::
============================
1:  Internal EFI Shell
```

Changing the boot order of bootable devices types.

Example:

```
syscfg /bbo EFI NW DVD HDD
```

Here, EFI is now the first system boot option and Network boot is the second option, followed by CD/DVD, Hard Disk Drive and so on.

Changing the order of bootable devices within a particular boot device class

```
syscfg /bbo NW 2 1
```

Here, IBA GE Slot 0101 v1327 has been chosen as the first bootable option and IBA GE Slot 0100 v1327 has been chosen as the second bootable option in network boot device category.

Note:

1. Reordering boot devices using /bbo should be followed by a system reset as per IPMI spec. Otherwise an immediate display command using /bbo switch may not display the correct boot device order.

2. /bbo commands cannot be cascaded; for example,

```
syscfg /bbo HDD 3 2 1
```

or

```
syscfg /bbo NW 2 1
```

are valid

but

```
syscfg /bbo HDD 3 2 1 NW 2 1
```

is not a valid command.

4.3.3 BIOS Console Redirection (/bcr)

syscfg /bcr {**disable** | **COM1** | **COM2**} {**9600** | **19200** | **38400** | **11520**} {**none** | **CTS**} {**PCANSI** | **VT100** | **VTUTF8**}

disable | **COM1** | **COM2**	COM port number.
9600 | **19200** | **38400** | **11520**	Baud rate options in BIOS Setup.
none | **CTS**	Flow control options in BIOS Setup. (CTS is RTS/CTS)
PCANSI | **VT100** | **VTUTF8**	Terminal type in BIOS Setup. (PCANSI is PC-ANSI; VT100 is VT100: and VTUTF8 is VT-UTF8)

Enables BIOS serial console redirection.

Refer to the *Product Guide* for your Intel® Server Board for more information on BIOS Setup options.

Examples:

```
syscfg /bcr COM1 19200 none VT100
syscfg /bcr disable 19200 none VT100
```

Note: If the /bcr option is enabled, the quiet boot option cannot be enabled.

4.3.4 Configure BIOS Settings (/bcs)

syscfg /bcs [*BIOS_Group_Name*] *BIOS_Setting_Name Value* [*BIOS_Setting_Name Value* [...]]

BIOS_Setting_Name	The name of the BIOS settings on the BIOS Setup screen. Refer to the Technical Product Specification for your server board for the BIOS Setup setting names.
BIOS_Group_Name	The name of the page in the BIOS Setup screen. Refer to the Technical Product Specification for your server board for the BIOS Setup screen names.
Value	The value for the BIOS Setting.

Sets individual BIOS Settings.

Refer to the *Technical Product Specification* for your Intel® Server Board for more information on BIOS Setup options.

Examples:

```
syscfg /bcs "Quiet Boot" 0
syscfg /bcs "Main" "Quiet Boot" 0 "POST Error Pause" 1
syscfg /bcs  "system acoustics and performance configuration" "Set throttling mode" 2
"Altitude" 900 "Set fan profile" 2
```

Use the syscfg /d biossettings command to show the possible values for the BIOS Setting. For example:

```
syscfg /d biossettings group "Main" "Quiet Boot"
```

Note:

Intel® S5500 Series Server Boards utility does not support configuring "BMC Configuration" under BIOS "Server Management" settings using the switches "/bcs" and "/d biossettings".

4.3.5 BIOS Load Default Factory Settings (/bldfs)

syscfg /bldfs

Refer to the *Product Guide* for your Intel® Server Board for more information on BIOS Setup default settings.

Loads the default factory BIOS settings.

If the /bldfs option requires a reboot to reset the default settings.

Examples:

```
syscfg /bldfs
```

4.3.6 BIOS Post Error Pause (/bpep)

syscfg /bpep {**enable** | **disable**}

enable, disable	Enables or disables the pause on POST error BIOS option.

Enable pause on POST error in BIOS option.

Examples:

```
syscfg /bpep enable
syscfg /bpep disable
```

4.3.7 BIOS Quiet Boot (/bqb)

syscfg /bqb {**enable** | **disable**}

enable, disable	Enables or disables the BIOS Quiet Boot feature.

Enable quiet boot option in the BIOS. The BIOS default is to enable the quiet boot option.

Refer to the *Product Guide* for your Intel® Server Board for more information on BIOS Setup options.

Examples:

```
syscfg /bqb enable
syscfg /bqb disable
```

Note: If the /bcr option is enabled, the quiet boot option cannot be enabled.

4.3.8 BIOS User Password (/bup)

syscfg /bup {*old_password* | **""**} [*new_password* | **""**]

old_password, *new_password*	The maximum length of the password is seven characters. The password cannot have characters other than alphanumeric (a-z, A-Z, 0-9) and is case insensitive. Use two double quotes ("") to represent a null password.

Sets or clears the BIOS User password. You must enter the old password, if set, or the null string if the User password is currently not set, before entering the new password. Enter a null string for the new password to clear the password. The User password controls access to modify the following BIOS Setup fields: time, date, language, and User password. If only one password (Administrator or User) is set, then this password is required to enter Setup.

If you set or change the BIOS User password, you cannot change any other BIOS option using syscfg except the BIOS User and Administrator passwords.

Refer to the *Product Guide* for your Intel® Server Board for more information on BIOS Setup options.

Examples:

```
syscfg /bup "" kwm93a3
syscfg /bup kwm93a9 lqts284
syscfg /bup lqts284 ""
syscfg /bap "" lqts284 /bup "" kwm93a3
```

Note: The /bup option can only be used if system has a valid Administrator password set. Clearing the Administrator password will also clear the User password.

4.3.9 BIOS Variable (/bvar)

syscfg /bvar

For S55xx platforms utility provides additional BIOS switch to create, modify, or delete a new EFI variable of user choice. The command line option of each of these commands is depicted in the following table. The command is supported for Linux*, Windows* and UEFI environment.

Command	*Description*
`/bvar create`	This command creates a new EFI variable. The parameters that "create" command takes are as follows – • Name: name of the EFI variable that to be created • GUID: GUID of the EFI variables • Data: Data for the variable • Attributes: Attribute is optional while creating, if not provided it will take an attribute value of 7 The command will be successful when the command is executed successfully and the variable is created. However if a variable with the same name and GUID is already existing, utility will provide appropriate message.
`/bvar overwrite`	This command will overwrite the data value of an existing EFI variable. Following are the parameters passed to this command – Name: Name of the existing variable GUID: Optional, however if the name is not unique then the utility will provide message for providing GUID as an additional parameter. Data: Data that are to be overwritten
`/bvar delete`	This command will delete an existing EFI variable. The parameters passed are as follows – Name: Name of variable GUID: Optional and needed if name is not unique

Note:

1. Caution should be taken before deleting any EFI variable or rewrite the data of an existing variable. If done wrongly this may lead to the system be unstable.

2. The attributes 0, 1, 4 and 5 are not supported with this switch.

3. The supported attributes are 2, 3, 6, and 7

Attributes	Description.
2	Volatile(V) + Boot Service Access(BS)
3	Non-Volatile(NV) + Boot Service Access(BS)
6	Volatile(V) + Boot Service Access(BS) + Real Time(RT)
7	Non-Volatile(NV) + Boot Service Access(BS) + Real Time(RT)

Examples:

```
syscfg /bvar create testvar 33838512-0BC7-4ba4-98C0-0219C2B61BF9 testvardata
syscfg /bvar create testvar 33838512-0BC7-4ba4-98C0-0219C2B61BF9 testvardata 6
syscfg /bvar overwrite testvar  testvarnewdata
syscfg /bvar delete testvar
```

4.4 Firmware Commands

This section lists the Firmware commands.

4.4.1 Channels (/c)

syscfg {**/c** | **/channel**} [*channel_ID* { **1** {**none** | **straight** | **MD5**} | **2** {**none** | **straight** | **MD5** } | **3** {**none** | **straight** | **MD5** } | **4** {**none** | **straight** | **MD5** } | **5** {**enable** | **disable**} | **6** {**enable** | **disable**} | **7** {**disabled** | **preboot** | **always** | **shared**} | **8** {**callback** | **user** | **operator** | **admin**} | **9** {**enable** | **disable**} }]

Channel_ID	BMC channel ID number.
1	Selects the authentication types for callback privilege level.
2	Selects the authentication types for user privilege level.
3	Selects the authentication types for operator privilege level.
4	Selects the authentication types for Admin privilege level.
5	Selects the Per message authentication.
6	Selects User Level Authentication enable.
7	Selects the Access Mode. Values of `preboot` and `shared` are only valid for serial channels.
8	Selects the Privilege level limit for the channel.
9	Selects Enable PEF on the specified channel.
none | **straight** | **MD5**	Authentication method for callback, user, operator, and admin privilege levels. You can enable multiple authentication methods by separating the possible values with the plus sign.
disabled | **preboot** | **always** | **shared**	Access Mode. Values of `preboot` and `shared` are only valid for serial channels.
callback | **user** | **operator** | **admin**	Privilege Level.
enable | **disable**	Enable or Disable Per Message Authentication, User Level Authentication, and PEF.

Configures the BMC channels. Use this command to change a single parameter (selected by the number 1..9)

Examples:

```
syscfg /c
syscfg /c 1 1 straight+MD5
syscfg /c 1 7 always /c 1 8 admin
```

Note: Callback privilege option is not supported for S55XX and S3420GP series of platforms. The option is kept open to support the previous generation of platforms.

4.4.2 Clear SEL (/csel)

syscfg {**/csel** | **/clearSEL**}

Clears the System Event Log (SEL).

```
syscfg /csel
syscfg /clearSEL
```

4.4.3 Date and Time (/dt)

syscfg {**/dt** | **/timeofday**} *hh*:*mm*:*ss mm*/*dd*/*yyyy*

hh:*mm*:*ss*	Hours (24 hour clock), minutes, and seconds.
mm/*dd*/*yyyy*	Month, day, and year.

Sets the time of day stored in the Real Time Clock (RTC) by the BIOS.

Example:

```
syscfg /dt 18:45:00 12/20/2007
```

4.4.4 email Alert Configure (/eac)

syscfg {**/eac** | **/emailalertconf**} *SMTP_Configurtion_Index* {**1** | **2** | **3**} *ASCII_String*

SMTP_Configuration_Index	1 to *n*. An index into the SMTP configuration table in firmware. The maximum number *n* depends on the firmware on your server board (refer to your server documentation for details).
{**1** | **2** | **3**}	Configuration Parameter selector: 1=From Address 2=To Address 3=Subject Line
ASCII_String	1 to 64 characters. This is the value for the selected parameter. Use double quotes (") to enclose strings that include space characters.

Configures the From, To, and Subject lines in the firmware email alerting SMTP configuration table.

Note: This command is not supported on Intel® Server Boards X38MLST and S3200SH.

Example:

```
syscfg /eac 1 1 server2@companyyx.com
```

4.4.5 email Alert Enable (/eae)

syscfg {**/eae** | **/emailalertenable**} *Sender_Name*

Sender_Name	Sender machine name. This string identifies the managed server to the SMTP server.

Sets the sender machine name for SMTP email alerts from the current server.

This command is not supported on Intel® Server Boards X38MLST and S3200SH.

Example:

```
syscfg /eae dupont01
```

4.4.6 email Alert Map (/eam)

syscfg {**/eam** | **/emailalertmap**} *Channel_ID Alert_Destination_Index email_Alert_Index*

Channel_ID	IPMI channel ID number (LAN channel).
Alert_Destination_Index	Alert Destination Index.
email_Alert_Index	Email Alert Index.

Maps the Alert Destination Index to the Email Alert Index.

This command is not supported on Intel® Server Boards X38MLST, S3200SH S55XX and S3420GP platform series.

Example:

```
syscfg /eam 1 2 2
```

4.4.7 email Alert Configure (/eac) for S55xx platforms

syscfg {**/eac** | **/emailalertconf**} *SMTP_Configurtion_Index* {0|**1** | **2** | **3**|**4**|**5**|**6**|**7**} *ASCII_String Channel number*

SMTP_Configuration_Index	1 to *n*. An index into the SMTP configuration table in firmware. The maximum number *n* depends on the firmware on your server board (refer to your server documentation for details).
{0|**1**	**2**	**3**|**4**|**5**|**6**|**7**}	0 = SMTP Enable/Disable 1 = From Address 2 = To Address 3 = Subject 4 = SMTP User Name 5 = User Password (Only Set, no Get) 6 = Server Address 7 = Message Content
ASCII_String	This is the value for the selected parameter. Use double quotes (") to enclose strings that include space characters. The possible values for these parameters are Valid LAN Channel

Channel Number

Configures the SMTP Enable/Disable From, To, Subject, SMTP User Name, User Password, Server Address and Message Content lines in the firmware email alerting SMTP configuration table.

Example:

```
syscfg /eac 1 1 server2@companyyx.com 1
```

4.4.8 email Alert Enable (/eae) for S55xx and S3420GP platforms

syscfg {**/eae** | **/emailalertenable**} *Sender_Name Channel _Number*

Sender_Name	Sender machine name. This string identifies the managed server to the SMTP server.
Channel number	Valid LAN channel number

Sets the sender machine name for SMTP email alerts from the current server.

Example:

```
syscfg /eae dupont01 3
```

4.4.9 help (/h)

syscfg {**/h** | **/?**} {**lan** | **user** | **serial** | **pef** | **sol** | **power** | **channel** | **system** | **advancedfwcfg** | **bios**}

lan | **user** | **serial** | **pef** | **sol** | **power** | **channel** | **system** | **fwadvcfg** | **bios**	Displays help in the specified area.

Note: In Linux*, to use the /? option, you must enclose it in double quotes.

Displays help on the system configuration utility.

Examples:

```
syscfg /h lan
syscfg /? power
```

4.4.10 LAN Alert Configuration (/lac)

syscfg {**/lac** | **/lanalertconf**} *Channel_Id Alert_Destination_Index Alert_Destination_IP_Address* {*Alert_ID_MAC_Address* | ***"resolve"***} {**enable** | **disable** } {**enable** | **disable**} {**1**..**7**} {**1**..**255**} {**SNMP** | **SMTP**}

Channel_ID	IPMI Channel number.
Alert_Destination_Index	Index into the Alert Destination table.
Alert_Destination_IP_Address	IP address of the alert destination in the dot separated decimal value format: *n*.*n*.*n*.*n*, where *n* is a number between 0 and 255.
Alert_ID_MAC_Address	MAC address of the alert destination in the hexadecimal format separated by hyphens: *hh-hh-hh-hh-hh-hh*, where *h* is a hexadecimal value from 0 to F., or "resolve" to automatically resolve the MAC Address
enable | **disable**	Backup Gateway state.
enable | **disable**	Alert Acknowledge state.
1..**7**	Retry count.
1..**255**	Retry interval in seconds.
SNMP | **SMTP**	Alert destination type: SNMP (Simple Network Management Protocol) or SMTP (Simple Mail Transport Protocol). The default is SNMP.

Configures the LAN Alert destinations for a channel. See *IPMI 2.0 Specification* for more information.

Example:

```
syscfg /lac 1 1 10.78.211.40 03-FE-02-41-F3 disable disable 0 1 SNMP
```

4.4.11 LAN Alert Enable (/lae)

syscfg {**/lae** | **/lanalertenable**} *Channel_ID Gateway_IP_Address* {*Gateway_MAC_Address* | ***"resolve"***} *SNMP_Community_String* [*Backup_Gateway_IP_ Address* {*Backup_Gateway_MAC_Address* | ***"resolve"***}

Channel_ID	IPMI Channel ID
Gateway_IP_Address	Gateway IP Address for the specified LAN channel
Gateway_MAC_Address	Gateway MAC Address for the specified LAN channel or "resolve" to automatically resolve the MAC Address
SNMP_Community_String	Enter the SNMP community string, or the null string ("")

Backup_Gateway_IP_ Address	Gateway IP Address for the specified LAN channel
Backup_Gateway_MAC_Address	Gateway MAC Address for the specified LAN channel or “resolve”

Notes:

- The Gateway_MAC_Address and Backup_Gateway_MAC_Address may optionally be set to “resolve”. If set to “resolve”, syscfg will attempt to resolve the MAC address before writing any values to firmware. If the MAC Address resolution fails, syscfg quits, without writing, and prints an error message.
- On S55XX and S3420GP platform series, the “Resolve” option is not supported across different subnets. Also, use of resolve command is not encouraged.

Enables LAN alerting on the specified channel. See *IPMI 2.0 Specification* for more information.

```
syscfg /lae 2 10.110.40.3 03-FE-02-41-F3 public
syscfg /lae 2 10.110.40.3 03-fe-02-41-f3 ""  10.110.40.4 0f-7e-42-4a-33
```

4.4.12 LAN Configuration (/lc)

syscfg {**/lc** | **/lanconf**} *Channel_ID* {**2a** {**none** | **straight** | **MD5**} | **2b {none | straight | MD5} | 2c {none | straight | MD5} | 2d {none | straight | MD5} | 3** *IP_Address* **| 4 {static | DHCP} | 6** *IP_Address* **| 10 {enable | disable} | 10b {enable | disable} | 11 {0..127500**} **| 12** *IP_Address* **| 13** *MAC_Address* **| 14** *IP_Address* **| 15** *MAC_Address* **| 16** *SNMP_Community_String* **}**

Channel_ID	IPMI Channel ID (LAN channel)
2a	Selects authentication type for callback privilege level. Multiple privilege levels may be specified by using the plus sign (see example below).
2b	Selects authentication type for user privilege level. Multiple privilege levels may be specified by using the plus sign (see example below).
2c	Selects authentication type for operator privilege level. Multiple privilege levels may be specified by using the plus sign (see example below).
2d	Selects authentication type for administrator privilege level. Multiple privilege levels may be specified by using the plus sign (see example below).
3	Selects IP Address for the specified LAN channel. (This is not a valid option when the source is set to DHCP.)
4	Selects source for IP Address
6	Selects subnet mask. (This is not a valid option when the source is set to DHCP.)
10	Enables Gratuitous ARP. The BMC will generate ARP packets at regular intervals. (LAN channels 1 and 2 only.) Not supported on Intel® Server Boards X38MLST and S3200SH.
10b	Enables the BMC to generated ARP responses when an ARP request is received. (LAN channels 1 and 2 only.) ARP responses cannot be disabled on Intel® Server Boards X38MLST and S3200SH.
11	Selects Gratuitous ARP interval in milliseconds (rounded down to a value that is a multiple of 500 ms). (LAN channels 1 and 2 only.) Not supported on Intel® Server Boards X38MLST and S3200SH.
12	Selects Gateway IP Address. (This is not a

	valid option when the source is set to DHCP.)
13	Selects Gateway MAC Address
14	Selects Backup Gateway IP Address
15	Selects Backup Gateway MAC Address
16	Selects Community String
C7	Up to a 64 byte ASCII string (printable characters in the range 0x21 to 0x7e) DHCP Host Name String

Configures the LAN settings on a specific channel. This option is similar to /lac, but it is used to only configure one parameter at a time. Select the parameter by choosing one of the parameter number listed above (2a, 2b, … 16) followed by a value.
See *IPMI 2.0 Specification* for more information

Notes:

- The Host IP, Subnet Mask and Default Gateway IP cannot be set when DHCP is enabled for the LAN channel.
- The Host MAC address cannot be set for any LAN channel in ESB2 BMC.
- The BMC ARP data can only be set for ESB2 LAN channels (LAN channels 1 and 2 are ESB2 LAN channels).
- The BMC-generated ARP responses cannot be set to “disable” on S3200/X38MLST, S55xx and S3420GP platform series.
- The Gratuitous ARP is not supported on S3200/X38MLST, S55xx and S3420GP platform series.
- The Gratuitous ARP interval value cannot be set on S3200/X38MLST, S55xx and S3420GP platform series.
- The DHCP Host Name is common for all LAN Channels.
- The set DHCP Host name will be used on the next DHCP lease renewal or at the current lease expiration

Example:

```
syscfg /lc 1 2b none+straight+md5

syscfg /lc 1 C7 TestDHCPHostName
```

4.4.13 LAN Enable (/le)

syscfg {**/le** | **/lanenable**} *Channel_ID* {**dhcp** | {**static** *IP_Address Subnet_Mask*}}

Channel_ID	BMC LAN Channel ID
static | **dhcp**	IP Address source
IP_Address	IP Address
Subnet_Mask	Subnet mask

Configures the LAN channel used by the BMC on the specified channel. See *IPMI 2.0 Specification* for more information.

.

Examples:

```
syscfg /le 1 dhcp
syscfg /le 1 static 10.30.240.21 255.255.255.0
```

4.4.14 PEF Configure (/pefc)

syscfg {**/pefc** | **/pefconfig**} {**enable** | **disable**} {**none** | **alert** | **pdown** | **reset** | **pcycle** | **diagint**}

enable | **disable**	Global PEF enable.
none | **alert** | **pdown** | **reset** | **pcycle** | **diagint**	PEF Action. Enable multiple actions by using a plus sign to concatenate the values. none may not be combined with other options. pdown means “power down,” pcycle means “power cycle,” and diagint means “diagnostic interrupt.”

Global enable of the Platform Event Filters used by the BMC.
See *IPMI 2.0 Specification*, Chapter 17, for more information on Platform Event Filtering.

Note: This command is not supported on Intel® Server Boards X38MLST and S3200SH

Example:

```
syscfg /pefc enable alert+pdown+reset+pcycle
```

4.4.15 PEF Filter (/peff)

syscfg {{**/peff** | **/peffilter**} *Filter_table_index* {**enable** | **disable**} {**none** | **alert** | **pdown** | **reset** | **pcycle** | **diagint**} {1..15}}

Filter_table_index	Index into the PEF filter table for a particular filter.
enable | **disable**	Enable specified filter.
none | **alert** | **pdown** | **reset** | **pcycle** | **diagint**	PEF Action. Enable multiple actions by using a plus sign to concatenate the values. none may not be combined with other options. pdown means "power down." pcycle means "power cycle."
1..15	Policy number. This number maps to the Alert Policy Table. (See also /pefp option.)

Configures the Platform Event Filters used by the BMC on the specified channel. See *IPMI 2.0 Specification*, Chapter 17, for more information on Platform Event Filtering.

Notes:

- This command is not supported on Intel® Server Boards X38MLST and S3200SH.
- On S55xx and S3420GP platform series, DIAGINT option is not supported

Example:

```
syscfg /peff 3 enable pdown 1 /peff 4 enable pdown 1
```

4.4.16 PEF Policy (/pefp)

syscfg {**/pefp** | **/pefpolicy**} *Policy_table_index* {**enable** | **disable**} {**1**..**15**} {**ALWAYS** | **NEXT_E** | **STOP** | **NEXT_C** | **NEXT_T**} *Channel_ID Destination_table_index*

Policy_table_index	Policy Table Index
enable | **disable**	Enable policy
1..15	Policy number
ALWAYS | **NEXT_E** | **STOP** | **NEXT_C** | **NEXT_T**	Alert Policy: ALWAYS = always send an alert to the destination indicated in the policy table entry specified by argument 1. NEXT_E = if an alert was successfully sent to the previous destination attempted, then do not send an alert to the destination indicated in the policy table entry specified in argument 1, but go to the next policy table entry with the same policy number instead. STOP=if an alert was successfully sent to the previous destination attempted, then do not send an alert to the destination indicated in the policy table entry specified in argument 1, and do not process any more policy table entries.

	NEXT_C = if an alert was successfully sent to the previous destination attempted, do not send an alert to the destination indicated in the policy table entry specified in argument 1, but go to the next policy table entry with the same policy number but that will send an alert on a different channel. NEXT_T = if an alert was successfully sent to the previous destination attempted, do not send an alert to the destination indicated in the policy table entry specified in argument 1, but go to the next policy table entry with the same policy number but a different destination type.
Channel_ID	IPMI Channel ID for a BMC channel
Destination_table_index	Destination Table Index

Configures the Platform Event Filter policy table used by the BMC on the specified channel. See *IPMI 2.0 Specification*, Chapter 17, for more information on Platform Event Filtering.

Note: This command is not supported on Intel® Server Boards X38MLST and S3200SH.

Example:

```
syscfg /pefp 3 enable 1 always 2 3
```

4.4.17 Power Restore Policy (/prp)

syscfg /prp {**off** | **on** | **restore**}

off | **on** | **restore**	Power restore policy

Sets the power restore policy. See *IPMI 2.0 Specification*, §28.8, for more information on the Set Power Restore Policy IPMI Command.

Example:

```
syscfg /prp off
```

4.4.18 Reset BMC (/rbmc)

syscfg {**/rbmc** | **resetBMC**}

Resets the Baseboard Management Controller.

Examples:

```
syscfg /rbmc
```

Note: This command should be used by itself. Do not issue Syscfg commands for a few seconds after this command to allow the BMC to initialize.

4.4.19 Restore Firmware Settings (/rfs)

syscfg {**/rfs** | **restorefirmwaresettings**}

Restores the factory default Baseboard Management Controller settings.

Example:

```
syscfg /rfs
```

Note: This command should be used by itself. Do not issue Syscfg commands for a few seconds after this command to allow the BMC to initialize. After a few seconds, follow this command with the Reset BMC or AC Power Cycle. Unpredictable operation may occur if you do not reset the BMC after this command.

4.4.20 Reset Node Manager (/rnm)

syscfg {**/rnm** | **resetnodemanager**}

Resetses the Node Manager (NM).

Node Manager (NM) provides a mechanism for the customer to configure multiple power policies on a platform. These policies can have a defined action to “shutdown” the platform. If the customer configures a power policy that performs a “shutdown” and the power threshold is set too low, the platform will not boot to the operating system if it is ACPI aware. A utility that runs in the EFI environment (which is not ACPI aware) allows for an in-band recovery mechanism.

Example:

```
syscfg /rnm or syscfg /resetnodemanager
```

4.4.21 Save (/s)

syscfg /s [*filename**.INI***] {**/f** | **/b** | **/f /b**}

filename	File name to be used for the syscfg configuration file (.INI) in the current working directory. If no filename is specified, the default file name syscfg.scf is used. The filename suffix must be .INI, or, if omitted, syscfg will add the .SCF suffix. The filename should consist of only alphanumeric characters.
/f	Save the firmware settings. (See Appendix

A for a list of the settings that are saved.)

/b Save the BIOS settings. (See Appendix A for a list of the settings that are saved.)

Saves the BIOS and firmware settings to a SCF file.

Examples:

```
syscfg /s ini /f /b
syscfg /s saved.ini /f
```

4.4.22 Serial Configuration (/sc)

syscfg {**/sc** | **/serialconf**} *Channel_ID* {
[**2a** {**None** | **Straight** | **MD5**}]
[**2b** {**None** | **Straight** | **MD5**}]
[**2c** {**None** | **Straight** | **MD5**}]
[**2d** {**none** | **Straight** | **MD5**}]
[**3a** {**enable** | **disable**}]
[3b **direct**]
[**4** {**0..450**}]
[**6a** {**enable** | **disable**}]
[**6b** {**enable** | **disable**}]
[**7a** {**9600** | **19200** | **38400** | **115200**}]
[**7b** {**enable** | **disable**}]
[**7c** {**none** | **RTSCTS** | **XONXOFF**}]
[**8a** {**enable** | **disable**}]
[**8b** {**enable** | **disable**}]
[**8c** {**enable** | **disable**}]
[**8i** {**enable** | **disable**}]
[**8j** {**enable** | **disable**}]
[**8k** {**enable** | **disable**}]
[**8l** {**enable** | **disable**}]
[**14** {**0..255**}]
[**15** *ASCII_String*]
[**29a** {**enable** | **disable**}]
[**29b** {**enable** | **disable**}]
[**29c** {**BSB** | **DEL**}]
[**29f** {**CR** | **NULL**}]
[**29g** {**CRLF** | **NULL** | **CR** | **LFCR** | **LF**}]
}

Channel_ID	IPMI Channel ID (this must be 4 for all supported server boards).
2a	Authentication type for Callback privilege level. Multiple privilege levels may be specified by using the plus sign (see example below).
2b	Authentication type for User privilege level. Multiple privilege levels may be specified by using the plus sign (see example below).
2c	Authentication type for Operator privilege level. Multiple privilege levels may be specified by using the plus sign (see example below).
2d	Authentication type for Administrator privilege level. Multiple privilege levels may be specified by using the plus sign (see example below).
3a	Selects Terminal mode.
3b	Selects Connection mode.
4	Sets Inactivity Timeout (in 30 second increments).
6a	Sets Close on DCD loss.
6b	Enables Inactivity timeout.
7a	Sets Baud rate in bits per second.
7b	Enables DTR hang-up.
7c	Sets Flow control.
8a	Enables MUX switch on DCD loss.
8b	Sets MUX baseboard to BMC switch.
8c	Sets MUX BMC to baseboard switch.
8i	Enables Ping before MUX switch.
8j	Enables Ping.
8k	Enables Ping during callback.
8l	Sets Connection Mode settings.
14	Sets Page blackout interval in minutes.
15	Set SNMP Community string. Linux* users should enclose the string in double quotes.
29a	Enables Terminal handshake.
29b	Enables Terminal echo.
29c	Set sTerminal delete control.
29d	Enables Terminal line edit.
29g	Sets Terminal output newline sequence.
29f	Sets Terminal input newline sequence.

Configures the serial port for server management.
Note: This command is not supported on Intel® Server Boards X38MLST, S3200SH, S55XX and S3420GP.

```
syscfg /sc 4 2d none+straight+MD5
```

4.4.23 Serial Dial String (/sds)

syscfg {**/sds** | **/serialdialstring**} *Channel_ID Dial_String_Index Dial_string*

Channel_ID	IPMI Channel ID (this must be 4 for S5000PAL, S5000PSL, and S5000PSA server boards)
Dial_String_Index	Dial String Index
Dial_String	ASCII string with the modem dial command and phone number

Sets the serial modem dial string used by the BMC on the specified channel. See *IPMI 2.0 Specification*, Chapters 14 and 25, for more information on IPMI Serial/Modem interface and commands.

Note: This command is not supported on Intel® Server Boards X38MLST, S3200SH, S55XX and S3420GP.

Example:

```
syscfg /sds 4 3 P@S=5154884627,@
```

4.4.24 Serial Enable (/se)

syscfg {**/se** | **/serialenable**} *Channel_ID* {**callback** | **user** | **operator** | **admin**} {**modem** | **direct**} {**9600** | **19200** | **38400** | **115200**}

Channel_ID	IPMI Channel ID (this must be 4 for S5000PAL, S5000PSL, S5000PSA server boards)
callback | **user** | **operator** | **admin**	Serial channel privilege level
modem | **direct**	Modem or direct connection
9600 | 19200 | 38400 | 115200	Baud rate

Enables serial communications with the BMC on the specified channel. See *IPMI 2.0 Specification*, Chapters 14 and 25, for more information on IPMI Serial/Modem interface and commands.

Note: This command is not supported on Intel® Server Boards X38MLST, S3200SH, S55XX and S3420GP.

Example:

```
syscfg /se 4 admin modem 19200
```

4.4.25 Serial Page Configuration (/spc)

syscfg {**/spc** | **/serialpageconf**} *Channel_ID Page_Destination_Selector Dial_String_Selector* {**1** | **2**} {**7** | **8**} {**none** | **odd** | **even**} {**9600** | **19200** | **38400** | **115200**}

Channel_ID	IPMI Serial Channel ID (this must be 4 for S5000PAL, S5000PSL, and S5000PSA server boards)
Page_Desitination_Selector	Page Destination Selector
Dial_String_Selector	Page String Selector
1 | **2**	Number of parity bits
7 | **8**	Number of data bits
none | **odd** | **even**	Parity
9600 | **19200** | **38400** | **115200**	Baud Rate

Configures serial paging for platform alerting with the BMC on the specified channel. See *IPMI 2.0 Specification*, Chapters 14 and 25, for more information on IPMI Serial/Modem interface and commands.

Note: This command is not supported on Intel® Server Boards X38MLST, S3200SH, S55XX and S3420GP.

Example:

```
syscfg /spc 4 2 4 1 8 none 19200
```

4.4.26 Serial Page Enable (/spe)

syscfg {**/spe** | **/serialpageenable**} *Channel_ID* {**0**..**255**} *SNMP_Community_String*

Channel_ID	IPMI Channel ID (this must be 4 for S5000PAL, S5000PSL, and S5000PSA server boards)
0..255	Page Blackout in minutes
SNMP_Community_String	SNMP Community String

Enables serial paging for platform alerting by the BMC on the specified channel. See *IPMI 2.0 Specification*, Chapters 14 and 25, for more information on IPMI Serial/Modem interface and commands.

Note: This command is not supported on Intel® Server Boards X38MLST, S3200SH, S55XX and S3420GP.

Example:

```
syscfg /spe 4 3 "modem public"
```

4.4.27 Serial Over LAN Enable (/sole)

syscfg {**/sole** | **/soleenable**} *Channel_ID* {**enable** | **disable**} {**user** | **operator** | **admin**} {**9600** | **19200** | **38400** | **115200**} {**0**..**7**} {**0**..**2550**}

Channel_ID	IPMI Channel ID
enable | **disable**	SOL enable
user | **operator** | **admin**	Privilege Level Limit
9600 | **19200** | **38400** | **115200**	Baud Rate
0..**7**	Retry count
0..**2550**	Retry interval in milliseconds, rounded to the nearest 10 ms

Enables Serial Over LAN (SOL) on the specified LAN channel.
See *IPMI 2.0 Specification*, Chapter 26, for more information on IPMI SOL commands.

Example:

```
syscfg /sole 1 Enable Operator 19200 6 200
```

4.4.28 Terminal Enable (/te)

syscfg {**/te** | **/termenable**} *Channel_ID* {**enable** | **disable**} {**BSB** | **DEL**} {**enable** | **disable**} {**enable** | **disable**} {**CRLF** | **NULL** | **CR** | **LFCR** | **LF**} {**CR** | **NULL**}

Channel_ID	IPMI Channel ID (this must be 4 for S5000PAL, S5000PSL, and S5000PSA server boards)
enable | **disable**	Line Edit enable
BSB | **DEL**	Delete control
enable | **disable**	Echo control
enable | **disable**	Handshake control
CRLF | **NULL** | **CR** | **LFCR** | **LF**	Output newline sequence
CR | **NULL**	Input newline sequence

Configures terminal mode communications on the specified BMC channel. See *IPMI 2.0 Specification*, Chapters 14 and 25, for more information on IPMI Serial/Modem interface and commands.

Note: This command is not supported on Intel® Server Boards X38MLST, S3200SH, S55XX and S3420GP.

Example:

```
syscfg /te 4 enable DEL enable enable lfcr cr
```

4.4.29 Users (/u)

syscfg {**/u** | **/user**} *User_ID User_name Password*

User_ID	User ID. Use a decimal integer in the range [1..n], the maximum value for n is 5. That is, only five users are supported irrespective of the platforms. User ID 1 is usually the anonymous user.
User_name	BMC User name consisting of up to 16 ASCII characters in the range 0x21 to 0x7e, except "[" and "]". Use "" to leave user name as anonymous.
Password	User BMC Password. ASCII string of up to 20 characters.

Sets the user name and password for the specified BMC user. See *IPMI 2.0 Specification* for more information on user passwords.

Note:

- The user names for User 1 (NULL) and User 2 (Root) cannot be changed on Intel® Server Boards X38MLST, S3200SH, S55XX and S3420GP platform series.
- Duplicate user names are not supported on Intel® Server Boards X38MLST, S3200SH and S55XX, S3420GP.

Examples:

```
syscfg /u  3 BobT gofps
syscfg /u 2 "" ""
```

4.4.30 User Enable (/ue)

syscfg {**/ue** | **/userenable**} *User_ID* {**enable** | **disable**} *Channel_ID*

User_ID	User ID. Use a decimal integer in the range [1..*n*] where *n* is the number of users supported by the platform BMC. User ID 1 is usually the anonymous user.
enable|**disable**	Enable or disable the specified user
Channel_ID	IPMI Channel ID

Enables or disables the BMC user on the specified BMC channel. See *IPMI 2.0 Specification* for more information on user configuration settings.

Example:

```
syscfg /ue 3 enable 1
```

4.4.31 User Privilege (/up)

syscfg {**/up** | **/userprivilege**} *User_ID Channel_ID* {**callback** | **user** | **operator** | **admin** | **none**} [**SOL** | **KVM** | **SOL+KVM**]

User_ID	BMC user ID.
Channel_ID	BMC channel number.
callback|**user** | **operator** | **admin** | **none**	IPMI privilege level. Privilege level "none" is not supported on Intel® Server Boards X38MLST, S3200SH, S55XX and S3420GP.
SOL|**KVM** | **SOL+KVM**	Specifies the type of payload: Serial Over LAN, KVM, or both.

Enables or disables the BMC user on the specified BMC channel. See *IPMI 2.0 Specification* for more information on user privilege levels.

Notes:

- User 2 (Root) privileges cannot be changed on Intel® Server Board X38MLST, S3200SH, S55XX and S3420GP platform series.
- Privilege level "none" is not supported on Intel® Server Boards X38MLST, S3200SH, S55XX and S3420GP platform series.
- Maximum five users will be supported by the utility irrespective of number of users support in the FW

Examples:

```
syscfg /up 1 1 admin
syscfg /up 1 1 admin sol
```

A Appendix A: IPMI Channel Assignments

The following table lists the Intel® Server Boards and their corresponding IPMI Channel assignments:

Server Board	IPMI Channel Assignment
Intel® S5000 and S7000 Series	Channel 1 Baseboard LAN Channel A Channel 2 Baseboard LAN Channel B Channel 3 Optional Intel® RMM NIC Channel 4 Serial Channel
Intel® Server Board X38MLST and S3200SH Series	Channel 1 Baseboard LAN Channel A
Intel® S5500 Series, and Intel® S3420GP Series	Channel 1 Baseboard LAN Channel A Channel 3 Baseboard LAN Channel B /Optional Intel® RMM NIC Channel 4 Serial Channel

B Appendix B: Saved Firmware Settings

This section describes firmware settings that are saved and restored with syscfg in binary and INI formats.

Binary Format

The following table lists the firmware settings that are saved and restored with syscfg in binary formats.

Table 3. Saved Firmware Settings

Component	Setting
Power Configuration Settings	Power Restore Policy
LAN Channel Settings	Alert Enable
	Per Message Authentication
	User Level Authentication Enable
	Access Mode
	Privilege Level Limit
	Community String
	Gratuitous ARP enable
	ARP interval
	Authentication Types
	DHCP enabled
	DHCP Host Name
	Subnet Mask
	Gateway IP
	Gateway MAC
	Backup Gateway IP
	Backup Gateway MAC
	BMC ARP Response Enable
Note: *On S55XX and S3420GP Platform series Save and Restore of Host IP, Subnet Mask, Default Gateway IP and Backup Gateway IP is not supported*	
LAN Alert Settings†	Alert Acknowledge Enabled
	Alert IP
	Alert MAC
	Gateway Selector
	Retry Count

Component	Setting
	Retry Interval
User Settings	User Name
	User Password
	Privilege Level Limit
	Callback Status
	Link Authentication Enable
	IPMI messaging enabled
	User Payload
Platform Event Filter Settings†	PEF Enable
	Event Message for PEF Action
	Startup Delay
	Alert Startup Delay
	Global Control Actions
	Event Filters
	Alert Policies
Serial Settings†	Paging Enable
	Per Message Authentication
	User Level Authentication
	Access Mode
	Privilege Level Limit
	Community String
	Authentication Types
	Connection Mode
	Flow Control
	Baud Rate
	DTR Hang-up Enable
	Inactivity Timeout Enabled
	Inactivity Timeout Interval
	Connection Mode Sharing
	Baseboard to BMC Switch
	BMC to Baseboard Switch
	Ping Before MUX Switch
	Ping Enabled
	Close on DCD Loss
	MUX Switch on DCD Loss
	Modem Init String

Component	Setting
	Modem Ring Duration
	Modem Call Retry Interval
	Modem Ring Dead Time
	Ping During Callback
	Modem Enabled Callback
	Blackout Interval
	Modem Dial Command
	Modem Hang-up Command
	Modem Escape Command
	System Phone Number
	Terminal Mode Enable
	Terminal Line Edit Enable
	Terminal Delete Control
	Terminal Echo Enable
	Terminal Handshake Enable
	Terminal Newline Output Sequence
	Terminal Newline Input Sequence
	Dial String Length
	Destination Dial Strings
Serial Paging Alert Settings†	Alert Acknowledge Enable
	Retry Count
	Retry Delay
	Paging Flow Control
	Paging Baud Rate
	Paging Stop Bits
	Paging Data Bits
	Paging Parity
	Dial String Selector
Serial Over LAN Settings	SOL Enable
	SOL Privilege Level
	SOL Retry Count
	SOL Retry Interval
	SOL Baud Rate
	SOL Authentication Enable
SMTP Alert Settings	Sender Machine Name
	From Address
	To Address

Component	Setting
	Subject Line
	LAN Alert Destination/SNMP Alert Index Mapping

Example of INI File

Instructions for using INI file:

- Section Header – must not be edited – could lead unpredictable behavior.
- Un-editable fields have specific instructions
- Options for the fields are clearly called out – no other options allowed
- Not all IPMI/BIOS settings under a section will be available – only those that are required for the user to configure
- The section headers are generated automatically depending on the platform and few sections and fields may not be available depending on the platform firmware and BIOS

```
; Warning!!! Warning!!! Warning!!!
; --------------------------------
; This file has been generated in a system with the BIOS/Firmware
; specifications as mentioned under [SYSTEM] section. Please do not
; modify or edit any information in this section. Attempt to restore
; these information in incompatible systems could cause serious
; problems to the system and could lead the system non-functional.
; Note: The file is best seen using wordpad.


[SYSTEM]
BIOSVersion=S5500.86B.01.00.0028.010920091128        ; This field should not
be edited
FWBootVersion=16                                     ; This field should not
be edited
FWOpcodeVersion=30                                   ; This field should not
be edited
PIAVersion=30                                        ; This field should not
be edited

[POWER]
PowerRestorePolicy=Off                               ; Options: On, Off or
Restore

[USERS]
NumberOfUsers=5                                      ; This field should not
be edited

[USERS::USER1]
UserName=                                            ; This field should not
be edited
GlobalUserStatus=Disable                             ; Options: Enable or
Disable
PrivilegeChl1=Admin                                  ; Options: User,
```

```
Operator, Admin, NoAccess
UserAccessCh1=Disable                                   ; Options: Enable or
Disable
SOLEnableCh1=Enable                                     ; Options: Enable or
Disable
PrivilegeChl3=Admin                                     ; Options: User,
Operator, Admin, NoAccess
UserAccessCh3=Disable                                   ; Options: Enable or
Disable
SOLEnableCh3=Disable                                    ; Options: Enable or
Disable
PrivilegeChl4=NoAccess                                  ; Options: User,
Operator, Admin, NoAccess
UserAccessCh4=Disable                                   ; Options: Enable or
Disable
SOLEnableCh4=Disable                                    ; Options: Enable or
Disable

[USERS::USER2]
UserName=root                                           ; This field should not
be edited
GlobalUserStatus=Disable                                ; Options: Enable or
Disable
PrivilegeChl1=Admin                                     ; This field should not
be edited
UserAccessCh1=Enable                                    ; This field should not
be edited
SOLEnableCh1=Disable                                    ; This field should not
be edited
PrivilegeChl3=Admin                                     ; This field should not
be edited
UserAccessCh3=Enable                                    ; This field should not
be edited
SOLEnableCh3=Enable                                     ; This field should not
be edited
PrivilegeChl4=NoAccess                                  ; This field should not
be edited
UserAccessCh4=Disable                                   ; This field should not
be edited
SOLEnableCh4=Disable                                    ; This field should not
be edited

[USERS::USER3]
UserName=test1                                          ; ASCII printable
characters in the range of 0x21 to 0x7E. Max length 16 bytes
GlobalUserStatus=Disable                                ; Options: Enable or
Disable
PrivilegeChl1=Admin                                     ; Options: User,
Operator, Admin, NoAccess
UserAccessCh1=Disable                                   ; Options: Enable or
```

```
Disable
SOLEnableCh1=Enable                                    ; Options: Enable or
Disable
PrivilegeChl3=Admin                                    ; Options: User,
Operator, Admin, NoAccess
UserAccessCh3=Disable                                  ; Options: Enable or
Disable
SOLEnableCh3=Enable                                    ; Options: Enable or
Disable
PrivilegeChl4=NoAccess                                 ; Options: User,
Operator, Admin, NoAccess
UserAccessCh4=Disable                                  ; Options: Enable or
Disable
SOLEnableCh4=Disable                                   ; Options: Enable or
Disable

[USERS::USER4]
UserName=test2                                         ; ASCII printable
characters in the range of 0x21 to 0x7E. Max length 16 bytes
GlobalUserStatus=Disable                               ; Options: Enable or
Disable
PrivilegeChl1=Admin                                    ; Options: User,
Operator, Admin, NoAccess
UserAccessCh1=Disable                                  ; Options: Enable or
Disable
SOLEnableCh1=Enable                                    ; Options: Enable or
Disable
PrivilegeChl3=Admin                                    ; Options: User,
Operator, Admin, NoAccess
UserAccessCh3=Disable                                  ; Options: Enable or
Disable
SOLEnableCh3=Enable                                    ; Options: Enable or
Disable
PrivilegeChl4=NoAccess                                 ; Options: User,
Operator, Admin, NoAccess
UserAccessCh4=Disable                                  ; Options: Enable or
Disable
SOLEnableCh4=Disable                                   ; Options: Enable or
Disable

[USERS::USER5]
UserName=test3                                         ; ASCII printable
characters in the range of 0x21 to 0x7E. Max length 16 bytes
GlobalUserStatus=Disable                               ; Options: Enable or
Disable
PrivilegeChl1=Admin                                    ; Options: User,
Operator, Admin, NoAccess
UserAccessCh1=Disable                                  ; Options: Enable or
Disable
SOLEnableCh1=Enable                                    ; Options: Enable or
```

```
Disable
PrivilegeChl3=Admin                                ; Options: User,
Operator, Admin, NoAccess
UserAccessCh3=Disable                              ; Options: Enable or
Disable
SOLEnableCh3=Enable                                ; Options: Enable or
Disable
PrivilegeChl4=NoAccess                             ; Options: User,
Operator, Admin, NoAccess
UserAccessCh4=Disable                              ; Options: Enable or
Disable
SOLEnableCh4=Disable                               ; Options: Enable or
Disable

[PEF]
PEFEnable=Enable                                   ; Options: Enable,
Disable
[PEF::FILTERS]
Filter1=Disable                                    ; Options: Enable,
Disable
Filter2=Disable                                    ; Options: Enable,
Disable
Filter3=Disable                                    ; Options: Enable,
Disable
Filter4=Disable                                    ; Options: Enable,
Disable
Filter5=Disable                                    ; Options: Enable,
Disable
Filter6=Disable                                    ; Options: Enable,
Disable
Filter7=Disable                                    ; Options: Enable,
Disable
Filter8=Disable                                    ; Options: Enable,
Disable
Filter9=Disable                                    ; Options: Enable,
Disable
Filter10=Disable                                   ; Options: Enable,
Disable
Filter11=Disable                                   ; Options: Enable,
Disable
Filter12=Disable                                   ; Options: Enable,
Disable

[LANCHANNELS]
NumberOfLANChannels=2                              ; This field should not
be edited
DHCPHostName=IntelDHCPServer                       ; ASCII printable
characters in the range of 0x21 to 0x7E. Max length 64 bytes
```

```
[CHANNEL::LAN1]
AlertEnable=Enable                                  ; Options: Enable,
Disable
PerMessageAuthentication=Enable                     ; Options: Enable,
Disable
UserLevelAuthentication=Enable                      ; Options: Enable,
Disable
AccessMode=AlwaysAvailable                          ; Options: Disable,
AlwaysAvailable, AccessShared
PrivilegeLevelLimit=Admin                           ; Options: User,
Operator, Admin
CommunityString=INTEL                               ; Upto 16 bytes, no
space allowed
ARPEnable=Disable                                   ; Options: Enable,
Disable
ARPResponse=Enable                                  ; Options: Enable,
Disable
ARPInterval=0                                       ; Decimal value between
0 & 255. This values is in milliseconds. Input value rounded down to the
nearest 500ms value
DHCPEnable=Disable                                  ; Options: Enable or
Disable. If 'Disable' static IP will be used
HostIP=0.0.0.0                                      ; In xxx.xxx.xxx.xxx
form
SubnetMask=0.0.0.0                                  ; In xxx.xxx.xxx.xxx
form
GatewayIP=0.0.0.0                                   ; In xxx.xxx.xxx.xxx
form
GatewayMAC=00-00-00-00-00-00                        ; In xx-xx-xx-xx-xx-xx
form
BackupGatewayIP=0.0.0.0                             ; In xxx.xxx.xxx.xxx
form
BackupGatewayMAC=00-00-00-00-00-00                  ; In xx-xx-xx-xx-xx-xx
form
AlertIP0=0.0.0.0                                    ; In xxx.xxx.xxx.xxx
form
AlertMAC0=00-00-00-00-00-00                         ; In xx-xx-xx-xx-xx-xx
form
AlertIP1=0.0.0.0                                    ; In xxx.xxx.xxx.xxx
form
AlertMAC1=00-00-00-00-00-00                         ; In xx-xx-xx-xx-xx-xx
form

[CHANNEL::LAN3]
AlertEnable=Enable                                  ; Options: Enable,
Disable
PerMessageAuthentication=Enable                     ; Options: Enable,
Disable
UserLevelAuthentication=Enable                      ; Options: Enable,
Disable
```

```
AccessMode=AlwaysAvailable                          ; Options: Disable,
AlwaysAvailable, AccessShared
PrivilegeLevelLimit=Admin                           ; Options: User,
Operator, Admin
CommunityString=INTEL                               ; Upto 16 bytes, no
space allowed
ARPEnable=Disable                                   ; Options: Enable,
Disable
ARPResponse=Enable                                  ; Options: Enable,
Disable
ARPInterval=0                                       ; Decimal value between
0 & 255. This values is in milliseconds. Input value rounded down to the
nearest 500ms value
DHCPEnable=Disable                                  ; Options: Enable or
Disable. If 'Disable' static IP will be used
HostIP=0.0.0.0                                      ; In xxx.xxx.xxx.xxx
form
SubnetMask=0.0.0.0                                  ; In xxx.xxx.xxx.xxx
form
GatewayIP=0.0.0.0                                   ; In xxx.xxx.xxx.xxx
form
GatewayMAC=00-00-00-00-00-00                        ; In xx-xx-xx-xx-xx-xx
form
BackupGatewayIP=0.0.0.0                             ; In xxx.xxx.xxx.xxx
form
BackupGatewayMAC=00-00-00-00-00-00                  ; In xx-xx-xx-xx-xx-xx
form
AlertIP0=0.0.0.0                                    ; In xxx.xxx.xxx.xxx
form
AlertMAC0=00-00-00-00-00-00                         ; In xx-xx-xx-xx-xx-xx
form
AlertIP1=0.0.0.0                                    ; In xxx.xxx.xxx.xxx
form
AlertMAC1=00-00-00-00-00-00                         ; In xx-xx-xx-xx-xx-xx
form


[CHANNEL::LAN1::SOL]
SOLEnable=Enable                                    ; Options: Enable,
Disable
PrivilegeLevelLimit=User                            ; Options: Admin, User,
Operator
SolNumberOfRetries=7                                ; Decimal value in the
range 0-7
SolRetryInterval=500                                ; Decimal value in the
range of 0-2559 rounded down to the nearest unit of 10. In milliseconds
SolBaudRate=38400                                   ; Options: 9600, 19200,
38400, 57600, 115200. Refer respective platform FW specifications for the
supported Baudrates


[CHANNEL::LAN3::SOL]
```

```
SOLEnable=Enable                                    ; Options: Enable,
Disable
PrivilegeLevelLimit=User                            ; Options: Admin, User,
Operator
SolNumberOfRetries=7                                ; Decimal value in the
range 0-7
SolRetryInterval=500                                ; Decimal value in the
range of 0-2559 rounded down to the nearest unit of 10. In milliseconds
SolBaudRate=38400                                   ; Options: 9600, 19200,
38400, 57600, 115200. Refer respective platform FW specifications for the
supported Baudrates

[EMAILCONFIG]
NumberOfEmailConfig=30                              ; This field should not
be edited

[EMAILCONFIG::CHANNEL1::INFO]
SenderName=test 1                                   ; ASCII printable
character max upto 32 bytes
FromAddress=                                        ; ASCII printable
character max upto 32 bytes
ToAddress=                                          ; ASCII printable
character max upto 64 bytes
Subject=                                            ; ASCII printable
character max upto 32 bytes
SMTPUserName=                                       ; ASCII printable
character max upto 16 bytes
Message=                                            ; ASCII printable
character max upto 64 bytes
ServerAddress=0.0.0.0                               ; In xxx.xxx.xxx.xxx
form

[EMAILCONFIG::CHANNEL3::INFO]
SenderName=                                         ; ASCII printable
character max upto 32 bytes
FromAddress=                                        ; ASCII printable
character max upto 32 bytes
ToAddress=                                          ; ASCII printable
character max upto 64 bytes
Subject=                                            ; ASCII printable
character max upto 32 bytes
SMTPUserName=                                       ; ASCII printable
character max upto 16 bytes
Message=                                            ; ASCII printable
character max upto 64 bytes
ServerAddress=0.0.0.0                               ; In xxx.xxx.xxx.xxx
form
```

```
[BIOS]

[BIOS::ADVANCED]

[BIOS::ADVANCED::MEMORY CONFIGURATION]

[BIOS::ADVANCED::MEMORY CONFIGURATION::MEMORY RAS AND PERFORMANCE
CONFIGURATION]
Select Memory RAS Configuration=0                    ;Options: 1=Mirroring:
0=Maximum Performance
NUMA Optimized=1                                     ;Options: 1=Enabled:
0=Disabled

[BIOS::ADVANCED::MASS STORAGE CONTROLLER CONFIGURATION]
Onboard SATA Controller=1                            ;Options: 1=Enabled:
0=Disabled
SATA Mode=0                                          ;Options: 2=SW RAID:
1=AHCI: 3=COMPATIBILITY: 0=ENHANCED

[BIOS::ADVANCED::SERIAL PORT CONFIGURATION]

[BIOS::ADVANCED::SERIAL PORT CONFIGURATION::SERIAL A ENABLE]
Serial A Enable=1                                    ;Options: 1=Enabled:
0=Disabled
Address=1016                                         ;Options: 744=2E8:
1000=3E8: 760=2F8: 1016=3F8
IRQ=4                                                ;Options: 4=4: 3=3

[BIOS::ADVANCED::SERIAL PORT CONFIGURATION::SERIAL B ENABLE]
Serial B Enable=1                                    ;Options: 1=Enabled:
0=Disabled
Address=760                                          ;Options: 744=2E8:
1000=3E8: 760=2F8: 1016=3F8
IRQ=3                                                ;Options: 4=4: 3=3

[BIOS::ADVANCED::USB CONFIGURATION]
USB Controller=1                                     ;Options: 1=Enabled:
0=Disabled
Legacy USB Support=0                                 ;Options: 2=Auto:
1=Disabled: 0=Enabled
Port 60/64 Emulation=1                               ;Options: 1=Enabled:
0=Disabled
Make USB Devices Non-Bootable=0                      ;Options: 1=Enabled:
0=Disabled
Device Reset Timeout=1                               ;Options: 3=40 seconds:
2=30 seconds: 1=20 seconds: 0=10 seconds
USB 2.0 Controller=1                                 ;Options: 1=Enabled:
0=Disabled
```

```
[BIOS::ADVANCED::PCI CONFIGURATION]
Maximize Memory below 4GB=0                              ;Options: 1=Enabled:
0=Disabled
Memory Mapped I/O above 4GB=0                            ;Options: 1=Enabled:
0=Disabled
Onboard Video=0                                          ;Options: 1=Disabled:
0=Enabled
Dual Monitor Video=0                                     ;Options: 1=Enabled:
0=Disabled
Onboard NIC1 ROM=1                                       ;Options: 1=Enabled:
0=Disabled
Onboard NIC2 ROM=1                                       ;Options: 1=Enabled:
0=Disabled

[BIOS::ADVANCED::SYSTEM ACOUSTICS AND PERFORMANCE CONFIGURATION]
Set Throttling Mode=0                                    ;Options: 2=CLTT:
1=OLTT: 0=Auto
Altitude=900                                             ;Options: 3000=Higher
than 1500m: 1500=901m - 1500m: 900=301m - 900m: 300=300m or less
Set Fan Profile=1                                        ;Options: 2=Acoustic:
1=Performance

[BIOS::MEMORY CONFIGURATION]

[BIOS::DIMM DISABLE]

[BIOS::THERMAL THROTTLING]

[BIOS::MEMORY MAP]

[BIOS::TYLERSBURG]

[BIOS::TYLERSBURG IOH 0]

[BIOS::TYLERSBURG CONFIGURATION]

[BIOS::INTEL® VT FOR DIRECTED I/O (VT-D)]

[BIOS::IOH DEVICE AND FUNCTION HIDE OPTIONS]

[BIOS::PCI EXPRESS PORT 0]
PCIe Port VPP=0                                          ;Options: 1=Enable:
0=Disable
VPP SMBUS Address=1                                      ;Options: 7=7: 6=6: 5=5:
4=4: 3=3: 2=2: 1=1: 0=0
```

```
[BIOS::PCI EXPRESS PORT 1]
Hot Plug Capable=0                                  ;Options: 1=Enable:
0=Disable
PCIe Port VPP=0                                     ;Options: 1=Enable:
0=Disable
VPP SMBUS Address=2                                 ;Options: 7=7: 6=6: 5=5:
4=4: 3=3: 2=2: 1=1: 0=0

[BIOS::PCI EXPRESS PORT 2]
Hot Plug Capable=0                                  ;Options: 1=Enable:
0=Disable
PCIe Port VPP=0                                     ;Options: 1=Enable:
0=Disable
VPP SMBUS Address=3                                 ;Options: 7=7: 6=6: 5=5:
4=4: 3=3: 2=2: 1=1: 0=0

[BIOS::PCI EXPRESS PORT 3]
Hot Plug Capable=0                                  ;Options: 1=Enable:
0=Disable
PCIe Port VPP=0                                     ;Options: 1=Enable:
0=Disable
VPP SMBUS Address=4                                 ;Options: 7=7: 6=6: 5=5:
4=4: 3=3: 2=2: 1=1: 0=0

[BIOS::PCI EXPRESS PORT 4]
Hot Plug Capable=0                                  ;Options: 1=Enable:
0=Disable
PCIe Port VPP=0                                     ;Options: 1=Enable:
0=Disable
VPP SMBUS Address=5                                 ;Options: 7=7: 6=6: 5=5:
4=4: 3=3: 2=2: 1=1: 0=0

[BIOS::PCI EXPRESS PORT 5]
Hot Plug Capable=0                                  ;Options: 1=Enable:
0=Disable
PCIe Port VPP=0                                     ;Options: 1=Enable:
0=Disable
VPP SMBUS Address=1                                 ;Options: 7=7: 6=6: 5=5:
4=4: 3=3: 2=2: 1=1: 0=0

[BIOS::PCI EXPRESS PORT 6]
Hot Plug Capable=0                                  ;Options: 1=Enable:
0=Disable
PCIe Port VPP=0                                     ;Options: 1=Enable:
0=Disable
VPP SMBUS Address=2                                 ;Options: 7=7: 6=6: 5=5:
4=4: 3=3: 2=2: 1=1: 0=0

[BIOS::PCI EXPRESS PORT 7]
```

```
Hot Plug Capable=0                                  ;Options: 1=Enable:
0=Disable
PCIe Port VPP=0                                     ;Options: 1=Enable:
0=Disable
VPP SMBUS Address=3                                 ;Options: 7=7: 6=6: 5=5:
4=4: 3=3: 2=2: 1=1: 0=0

[BIOS::PCI EXPRESS PORT 8]
Hot Plug Capable=0                                  ;Options: 1=Enable:
0=Disable
PCIe Port VPP=0                                     ;Options: 1=Enable:
0=Disable
VPP SMBUS Address=4                                 ;Options: 7=7: 6=6: 5=5:
4=4: 3=3: 2=2: 1=1: 0=0

[BIOS::PCI EXPRESS PORT 9]
Hot Plug Capable=0                                  ;Options: 1=Enable:
0=Disable
PCIe Port VPP=0                                     ;Options: 1=Enable:
0=Disable
VPP SMBUS Address=5                                 ;Options: 7=7: 6=6: 5=5:
4=4: 3=3: 2=2: 1=1: 0=0

[BIOS::PCI EXPRESS PORT 10]
Hot Plug Capable=0                                  ;Options: 1=Enable:
0=Disable
PCIe Port VPP=0                                     ;Options: 1=Enable:
0=Disable
VPP SMBUS Address=6                                 ;Options: 7=7: 6=6: 5=5:
4=4: 3=3: 2=2: 1=1: 0=0

[BIOS::ICH9/ICH10 CONFIGURATION]

[BIOS::ICH PCIE CONFIGURATION]

[BIOS::ICH MISC DEVICES CONFIGURATION]
System State After Power Failure=1                  ;Options: 1=On: 0=Off

[BIOS::ICH SATA CONFIGURATION]

[BIOS::ICH USB CONFIGURATION]

[BIOS::PROCESSOR CONFIGURATION]
Turbo Mode=1                                        ;Options: 1=Enabled:
0=Disabled
Enhanced Intel SpeedStep(R) Tech=1                  ;Options: 1=Enabled:
0=Disabled
Intel(R) Hyper-Threading Tech=0                     ;Options: 0=Enabled:
```

```
1=Disabled
Core Multi-Processing=0                          ;Options: 2=2: 1=1:
0=All
Execute Disable Bit=1                            ;Options: 1=Enabled:
0=Disabled
Intel(R) Virtualization Technology=0             ;Options: 1=Enabled:
0=Disabled
Intel(R) VT for Directed I/O=0                   ;Options: 1=Enabled:
0=Disabled
Hardware Prefetcher=0                            ;Options: 0=Enabled:
1=Disabled
Adjacent Cache Line Prefetch=0                   ;Options: 0=Enabled:
1=Disabled
Direct Cache Access (DCA)=1                      ;Options: 1=Enabled:
0=Disabled

[BIOS::MAIN]
Quiet Boot=1                                     ;Options: 1=Enabled:
0=Disabled
POST Error Pause=0                               ;Options: 1=Enabled:
0=Disabled

[BIOS::SECURITY]
Front Panel Lockout=0                            ;Options: 1=Enabled:
0=Disabled

[BIOS::SERVER MANAGEMENT]
Assert NMI on SERR=1                             ;Options: 1=Enabled:
0=Disabled
Assert NMI on PERR=1                             ;Options: 1=Enabled:
0=Disabled
Resume on AC Power Loss=0                        ;Options: 2=Reset:
1=Last state: 0=Stay Off
Clear System Event Log=0                         ;Options: 1=Enabled:
0=Disabled
FRB-2 Enable=1                                   ;Options: 1=Enabled:
0=Disabled
OS Boot Watchdog Timer=0                         ;Options: 1=Enabled:
0=Disabled
Plug & Play BMC Detection=1                      ;Options: 1=Enabled:
0=Disabled
ACPI 1.0 Support=0                               ;Options: 1=Enabled:
0=Disabled

[BIOS::SERVER MANAGEMENT::CONSOLE REDIRECTION]
Console Redirection=2                            ;Options: 2=Serial Port
B: 1=Serial Port A: 0=Disabled
Flow Control=1                                   ;Options: 1=RTS/CTS:
0=None
```

```
Baud Rate=0                                          ;Options: 4=115.2k:
3=57.6k: 2=38.4k: 1=19.2k: 0=9.6k
Terminal Type=0                                      ;Options: 3=VT-UTF8:
2=VT100+: 1=VT100: 0=PC-ANSI
Legacy OS Redirection=0                              ;Options: 1=Enabled:
0=Disabled

[BIOS::BOOTORDER]
1=KingstonDataTraveler 2.01.00
2=IBA GE Slot 00C8 v1327
3=Internal EFI Shell
4=Primary Master CD-ROM
```