# Intel® NetStructure™ IPT Series Products on Linux

## Configuration Guide

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# *Figures*

# Revision History

This revision history summarizes the changes made in each published version of this document.

| Document No. | Publication Date | Description of Revisions |
|---|---|---|
| 05-1751-002 | August 2005 | Revision History: Added this section, which documents changes from previous version of the document.<br>Chapter 1, "Configuration Overview": Removed previous Step 3, Installing and configuring the Hot Swap Kit (HSK) and Redundant System Slot (RSS) from Section 1.1, "Major Configuration Steps", on page 9. Removed Installing and configuring the HSK and RSS Software paragraph from Section 1.2, "The Configuration Process", on page 10.<br>Chapter 3, "Configuration Procedures": Revised Section 3.2, "Order of Procedures", on page 19 by adding "Using the Intel Dialogic Configuration Manager for Linux" and removing "Configuring HSK and RSS Software". Revised Section 3.3, "Starting the Board Configuration Utility (config.sh)", on page 20 by replacing the procedure with new config.sh procedure. Added new Section 3.4, "Using the Intel® Dialogic® Configuration Manager for Linux", on page 21. Removed previous Section 3.7, "Configuring HSK and RSS Software (hs_bld-kernel.sh). |
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# About This Publication

The following topics provide information about the *Intel® NetStructure™ IPT Series on Linux Operating Systems Configuration Guide*:



## Purpose

This guide provides information about configuring Intel® NetStructure™ IPT Series board in a Linux environment. Configuration procedures are included, as well as a description of configuration files and each configuration parameter.

## Intended Audience

This information is intended for:

- Developers:
  - System, application, and technology developers
  - Toolkit vendors
  - VAR/system integrators
- System Operators:
  - System and network administrators
  - Support personnel (craftsperson)

## How to Use This Publication

This information is organized as follows:

- Chapter 1, "Configuration Overview" describes the major configuration steps in the order in which they are to be performed and provides a brief overview of each aspect of configuring a system containing Intel® NetStructure IPT Series boards.
- Chapter 2, "pmac.cfg Details" provides background information about the *pmac.cfg* file including directory location, formatting conventions, and a sample file.
- Chapter 3, "Configuration Procedures" provides step-by-step procedures for configuring a system that uses Intel® NetStructure IPT Series boards.

- Chapter 4, "pmac.cfg File Parameter Reference" describes each parameter associated with the *pmac.cfg* file.

## Related Information

For additional information related to configuring an Intel® NetStructure IPT Series board, see the following:

- For timely information that may affect configuration, see the Release Guide and Release Update appropriate for your release. Be sure to check the Release Update for the system release you are using for any updates or corrections to this publication. Release Updates are available on the Telecom Support Resources website at *http://resource.intel.com/telecom/support/documentation/releases/index.htm*
- For information about installing the system software, see the systems software installation guide supplied with your release.
- For information about configuring DM3 Architecture boards, see the *Intel® DM3 Architecture Products on Linux Configuration Guide*.
- For information about configuring Springware Architecture boards, see the *Intel® Springware Architecture Products on Linux Configuration Guide*.
- For information about administrative functions relating to the Intel® NetStructure™ boards, see the systems administration guide supplied with your release.
- For information about administrative functions relating to the SNMP agent software, see the *SNMP Agent Software for Linux Operating Systems Administration Guide*.
- The Intel® Telecom Support Resources Web site at *http://developer.intel.com/design/telecom/support/* provides wide-ranging information in the form of technical notes, problem tracking, application notes, as well as other helpful documentation.
- *http://www.intel.com/design/network/products/telecom* (for product information)

# Configuration Overview 1

The configuration overview provides the following information about configuring an Intel® NetStructure™ IPT Series board, as well as other items:



## 1.1 Major Configuration Steps

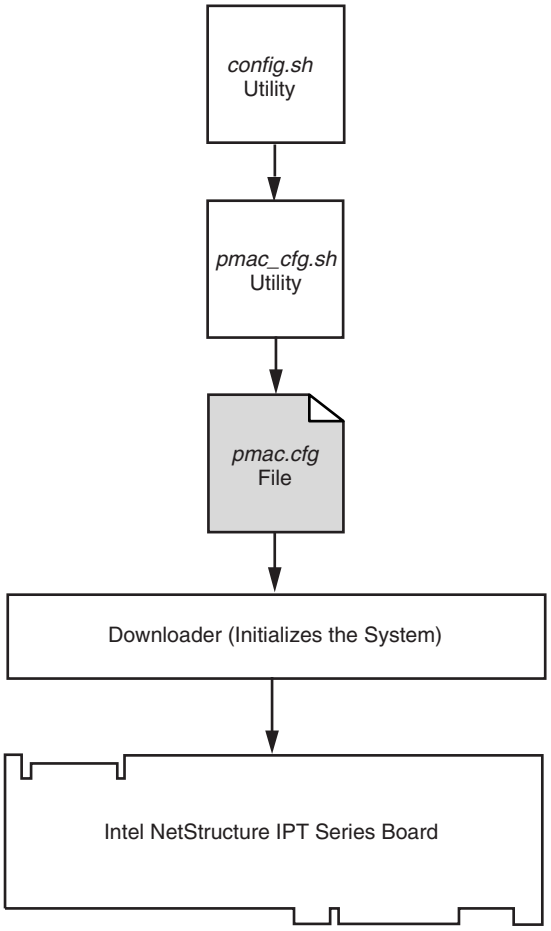
The following major steps are used to configure an Intel® NetStructure IPT Series board as well as associated software:

1. Modifying the *pmac.cfg* file parameters
2. Configuring Simple Network Management Protocol (SNMP) agent software (optional)
3. Assigning time slots when using a third party board as the clock master (optional)
4. Initializing the system
5. Reconfiguring the system (optional)

Detailed information about the board configuration procedures is provided in Chapter 3, "Configuration Procedures".

Board-specific files and utilities associated with the configuration process are shown in Figure 1.

**Figure 1. Board Configuration Process**




## 1.2 The Configuration Process

Once the Intel® Dialogic® System Release is installed, you can configure your Intel® NetStructure boards by executing *config.sh*. This script file automatically invokes the IPT Series Configuration utility (*pmac_cfg.sh*). This utility displays a series of screens and prompts you for configuration information that results in the creation of the *pm ac.cfg* file. This ASCII text file contains the configuration parameters that you selected and is used by the downloader to initialize the system when the Intel® NetStructure IPT Series boards are started. For detailed procedures, see Chapter 3, "Configuration Procedures". An overview of the configuration process is as follows:

Modifying the *pmac.cfg* file parameters

The */usr/dialogic/cfg/pmac.cfg* file defines a number of Intel® NetStructure IPT Series board-specific parameters that are set through the IPT Series Board Configuration (*pmac_cfg.sh*) utility. This utility displays screens that allow to you to modify file parameters. If the *pmac.cfg* file does not exist on the system, the utility creates one. If the file does exist, the utility

displays the current parameter settings in the file and updates the file as changes are saved. Certain parameter values also may be modified by editing this ASCII file using a text editor.

Configuring SNMP agent software

SNMP agent software provides monitoring and administration of Intel® NetStructure boards using the Simple Network Management Protocol (SNMP). The SNMP Configuration Tool (*dlgcsnmpconf*) is invoked as part of the configuration script *config.sh*. This tool provides both automatic and manual methods of configuration SNMP communities and SNMP v1 trap destinations. In addition, the SNMP Agent MIB files must be installed on the network management station after the main configuration script (*config.sh*) has completed.

Assigning time slots for third-party boards

Third-party boards and Intel® NetStructure boards must not transmit data on the same TDM bus time slots. Also, the third-party technology (clock master) must execute before Intel® NetStructure IPT Series boards (slaves) in the startup sequence. To accommodate these requirements, adjustments must be made to the */usr/dialogic/cfg/.sctsbase* file.

Initializing the System

During system initialization, the Intel® NetStructure products are configured using the *pmac.cfg* configuration file settings.

Reconfiguring a System

If hardware is added or configuration parameters need to be changed, the system must be reconfigured. Parameter changes can be made by editing the *pmac.cfg* file or re-running the *pmac_cfg.sh* utility. The system is then re-initialized using the *stopbrd* and *startbrd* or *dlstop* and *dlstart* utilities.

# pmac.cfg Details 2

This chapter provides background information about the *pmac.cfg* file including directory location, formatting conventions, and a sample file. This chapter also includes information to help you set the parameters contained in the *pmac.cfg* file.



## 2.1 Formatting Conventions

The *pmac.cfg* file, located in *dialogic/cfg*, is an ASCII file that contains board information required by the drivers and downloader. The file is updated when you run the *pmac_cfg.sh* utility. After your system is configured using the *pmac_cfg.sh* utility, *pmac.cfg* parameters can be updated by rerunning the *pmac_cfg.sh* utility or by manually editing the *pmac.cfg* file. When manually editing the file, use the following formatting conventions:

Board Sections

Board parameters are grouped into sections. Each section head is enclosed in brackets and includes the board model number, the board number, and other board-specific information (as displayed in the Board Identification Section). The parameters sections for the board immediately follow the section head. The format of a board section head is as follows:

```
[IPT6720 #<bd#> @PCI Bus/Slot <Board#/Slot#> Phys Shelf/Slot
    <Shelf#/Slot#>]
```

Parameter Sections

Configuration parameters are grouped into parameter sections immediately following the board section. Each section begins with a boxed section head, that is, a section name surrounded by pound signs (#). The format of a parameter section head is as follows:

```
########################################
#         <Section Title> Section      #
#                                      #
# <Notes>                              #
########################################
```

Each section head contains the section title and notes relevant to the section. The parameters for the section immediately follow the section head. Parameters that are not modifiable by the user (that is, read-only) are noted as such in the section head. Any changes to these non-modifiable parameter will be overwritten when the system is started.

Parameters

Parameters are assigned values using the following format:

```
<parameter name>=<parameter value>
```

Comments

Comments can be added to the *pmac.cfg* file. If you use a pound sign (#) anywhere on a line, all text to the right of the character until the end of the line is treated as a comment (ignored). The format is as follows:

```
#  comment
```

***Note:*** Parameters preceded by a pound sign identify valid, read-only parameters.

For a list of *pmac.cfg* parameters, see Chapter 4, "pmac.cfg File Parameter Reference".

## Example File

```
##############################################################################
[IPT6720 #0 @PCI Bus/Slot 1/10 Phys Shelf/Slot 0/2]
##############################################################################
#                       Board Identification Section                         #
#                                                                            #
# Only PciBusNumber, PciSlotNumber and BoardEnable are User Modifiable.      #
# If you change a parameter that is not User Modifiable, it will be corrected #
# during dlstart.                                                            #
##############################################################################
Auid=50002
BoardCondition=Good
BoardPresent=Yes
BoardEnabled=Yes
PhysicalShelf=0
PhysicalSlot=2
PciBusNumber=1
PciSlotNumber=10
DriverBoardId=0
##############################################################################
#                        Software Constants Section                          #
#                                                                            #
# No Parameters in this Section are User Modifiable.                         #
##############################################################################
#SerialNumber=0x012340000
#HardwareVersion=0x010203040
#     (parameters omitted)
#
##############################################################################
#                       TDM Bus Configuration Section                        #
#                                                                            #
# No Parameters in this Section are User Modifiable.                         #
##############################################################################
#ClockMode=Slave
#ClockSource=Clk_Lead_A
#ClockFrequency=8KHz
#ClockFallback=Clk_Lead_B
##############################################################################
#                    Call Defaults Configuration Section                     #
#                                                                            #
# All Parameters are User Modifiable.                                        #
##############################################################################
StartContextID=1
#     (parameters omitted)
#
##############################################################################
#                   General IP Configuration Section                         #
#                                                                            #
# Only the EnetPortsActive Parameter is User Modifiable.                     #
##############################################################################
#IPVersion=IPv4
EnetPortsActive=100BT
```

```
################################################################################
#                     100BASE-TX Configuration Section                         #
#                                                                              #
# All Parameters except 100BT_MACAddressPort0 and 100BT_MACAddressPort1 are    #
# User Modifiable.                                                             #
################################################################################
#100BT_MACAddressPort0=0x00 0x0e 0xec 0x01 0x2a 0xfe
#100BT_MACAddressPort1=0x00 0x0e 0xac 0xd2 0xae 0xcd
100BT_DHCPModePort0=Disable


100BT_DHCPModePort1=Disable
100BT_Mode=Fallback
100BT_PrimaryPort=Port0
100BT_Failover=No_Failover
# 100BT_Port0IPEntity1
100BT_Port0IPEntity1_IPv4Address=192.168.1.16
100BT_Port0IPEntity1_UDPPortStart=2000
100BT_Port0IPEntity1_NumUDPPortsPerIPAddress=1346
100BT_Port0IPEntity1_UDPUseChecksum=Set_Checksum_To_Zero
100BT_Port0IPEntity1_DefaultTypeOfService=0
100BT_Port0IPEntity1_DefaultTimeToLive=64
100BT_Port0IPEntity1_IPv4NetMask=255.255.255.0
100BT_Port0IPEntity1_IPv4GatewayAddress=192.168.1.1
# 100BT_Port0IPEntity2
100BT_Port0IPEntity2_IPv4Address=10.0.10.0
100BT_Port0IPEntity2_UDPPortStart=0
100BT_Port0IPEntity2_NumUDPPortsPerIPAddress=1346
100BT_Port0IPEntity2_UDPUseChecksum=Set_Checksum_To_Zero
100BT_Port0IPEntity2_DefaultTypeOfService=0
100BT_Port0IPEntity2_DefaultTimeToLive=64
100BT_Port0IPEntity2_IPv4NetMask=0.0.0.0
100BT_Port0IPEntity2_IPv4GatewayAddress=10.0.10.0
# 100BT_Port0IPEntity3
#     (parameters omitted)
# 100BT_Port0IPEntity4
#     (parameters omitted)
# 100BT_Port1IPEntity1
100BT_Port1IPEntity1_IPv4Address=192.168.2.32
100BT_Port1IPEntity1_UDPPortStart=2000
100BT_Port1IPEntity1_NumUDPPortsPerIPAddress=1346
100BT_Port1IPEntity1_UDPUseChecksum=Set_Checksum_To_Zero
100BT_Port1IPEntity1_DefaultTypeOfService=0
100BT_Port1IPEntity1_DefaultTimeToLive=64
100BT_Port1IPEntity1_IPv4NetMask=255.255.255.0
100BT_Port1IPEntity1_IPv4GatewayAddress=192.168.2.1
# 100BT_Port1IPEntity2
#     (parameters omitted)
# 100BT_Port1IPEntity3
#     (parameters omitted)
# 100BT_Port1IPEntity4
#     (parameters omitted)
################################################################################
#                      1000BASE-T Configuration Section                        #
#                                                                              #
# All Parameters except 1000BT_MACAddressPort0 and 1000BT_MACAddressPort1 are  #
# User Modifiable.                                                             #
################################################################################
#1000BT_MACAddressPort0=0x00 0x0e 0xac 0x10 0x00 0xcc
#     (parameters omitted)
#
################################################################################
#               T.38 Fax Over IP (FOIP) Configuration Section                  #
#                                                                              #
# No Parameters in this Section are User Modifiable.                           #
################################################################################
#DefaultT38FaxVersion=0x00
```

```
#     (parameters omitted)
#
################################################################################
#                       RFC2833 Configuration Section                          #
#                                                                              #
# All Parameters are User Modifiable.                                          #
################################################################################


DefaultRfc2833CapabilityTonePayloadType=0x00
#     (parameters omitted)
#
################################################################################
#                         Driver Configuration Section                         #
#                                                                              #
# All Parameters are User Modifiable.                                          #
################################################################################
InboundTimer=50
#     (parameters omitted)
#
################################################################################
#                         For Internal Use Only Section                        #
#                                                                              #
# No Parameters in this section are User Modifiable.                           #
# If you change a parameter that is not User Modifiable, it will be corrected #
# during dlstart.                                                              #
################################################################################
IpParamsChanged=No
#     (parameters omitted)
```

## 2.2 Parameter Sections

The *pmac.cfg* file parameter sections include the following:

Board Identification Section
: This section contains parameters used to physically identify the board. Only the **BoardEnabled**, **PciBusNumber**, and **PciSlotNumber** parameters are modifiable in this section. All other parameters are non-modifiable.

Software Constants Section
: This section contains parameters that define the physical specifications of the board. These parameters are non-modifiable.

TDM Bus Configuration Section
: This section contains parameters that define the Intel® NetStructure™ IPT Series board's TDM bus status. These parameters are non-modifiable.

Call Defaults Configuration Section
: This section contains call handling parameters for the board.

General IP Configuration Section
: This section contains parameters used to identify the active Ethernet* ports. Only the **EnetPortsActive** parameter is modifiable in this section. All other parameters are non-modifiable.

100Base-TX Configuration Section

This section contains parameters used to configure the ports and entities on the board when using the 100Base-TX ports.

***Note:*** This section contains the same parameters as the 1000Base-T Configuration Section except the parameter name identifies the pair of Ethernet interface being configured (100Base-T or 1000Base-TX).

1000Base-T Configuration Section

This section contains parameters used to configure the ports and entities on the board when using 1000Base-T ports.

***Note:*** This section contains the same parameters as the 100Base-TX Configuration Section except the parameter name identifies the pair of Ethernet interface being configured (100Base-T or 1000Base-TX).

Call Progress Tones Configuration Section

This section contains parameters used to set the characteristics of call progress tones that are generated by the board.

T.38 Fax Over IP (FoIP) Configuration Section

This section contains parameters that define the fax over IP configuration. These parameters are non-modifiable.

RFC2833 Configuration Section

This section contains parameters that allow you to customize how DTMF tone signals and telephony events are carried in RTP packets. These parameters are used to avoid distortion of tones due to IP compression.

Driver Configuration Section

This section contains parameters that allow the user to optimize applications by customizing certain aspects of the board's device driver. All parameters are modifiable by the user.

For Internal Use Only Section

The parameters in this section are not user modifiable. Any changes to this section will be overwritten when the system is started.

# Configuration Procedures 3

This section provides detailed procedures for configuring a system. This also includes assumptions, prerequisites, and describes the order in which to perform the procedures. The configuration procedures are grouped into the following categories:



## 3.1 Assumptions and Prerequisites

The following assumptions and prerequisites exist regarding the configuration procedures:

- All required Intel® System Release software, including prerequisites, have been installed according to the procedures in the software installation guide supplied with the system release.
- The Intel® System Release was installed in the default directory */usr/dialogic*. Command instructions, directories paths and environment variable are shown relative to the default subdirectory.
- If SNMP agent software is installed, it is assumed all prerequisites have been met as outlined in the software installation guide and SNMP agent software administration guide supplied with your system release.

## 3.2 Order of Procedures

Configuration procedures should be performed in the order presented below. Procedures that are required when initially configuring any system are noted as such. The additional procedures may be required depending on your system.

- Starting the Board Configuration Utility (config.sh) (**required**)
- Using the Intel® Dialogic® Configuration Manager for Linux **(required)**

- Using the Intel® NetStructure™ IPT Series Configuration Utility (pmac_cfg.sh) (**required**)
- Using the SNMP Configuration Tool (dlgcsnmpconf)
- Completing the Board Configuration Utility (config.sh) (**required**)
- Assigning Time Slots When Using a Third-Party Board as Clock Master
- Transferring SNMP Agent Files to the Network Management Station
- Initializing the System (**required**)
- Reconfiguring a System

## 3.3 Starting the Board Configuration Utility (config.sh)

If you want to keep a record of all configuration prompts and responses, use the Linux *script* utility prior to starting the board configuration procedure. You can then see the *script* output file for information such as configuration parameter selections. For information about using the *script* utility, see the Red Hat Linux documentation.

The following procedure explains the initial configuration steps. After these initial steps, further instructions depend on the system you are configuring.

1. Enter the following command to start the configuration script:

   ```
   ./config.sh
   ```

   The system displays the following messages:

   ```
                   Intel(R) Dialogic(R) System Release 6.1 for Linux
                               CONFIGURATION

   This tool will assist you in configuring the Intel Dialogic software.

   Would you like to configure SNMP on this system (y/n, default=n) ?
   ```

2. If you installed the SNMP agent software, type `y`; otherwise type `n`.

   ***Note:*** Do not enter y to configure SNMP if you have not installed the SNMP agent software. If you do this, the configuration procedure is aborted and you will be prompted to run the installation script (install.sh) again so you can install the SNMP agent software.

   If you enter y to configure SNMP, the SNMP Agents Configuration Tool is automatically invoked when board configuration is complete.

   After you respond to the prompt for configuring SNMP, the system displays the following messages:

   ```
   Copying driver files.....

   Drivers will now be loaded...
   ```

   At this time, the Intel® Dialogic® Configuration Manager for Linux utility is invoked.

***Note:*** This utility can also be invoked separately by executing the CFG command.

Proceed with Section 3.4, “Using the Intel® Dialogic® Configuration Manager for Linux”, on page 21.

## 3.4 Using the Intel® Dialogic® Configuration Manager for Linux

The Configuration Manager utility begins by displaying the Intel® Dialogic® Configuration Manager - Main Screen, Figure 2.

**Figure 2. Intel® Dialogic® Configuration Manager - Main Screen**

```
        Intel(R) Dialogic(R) Configuration Manager - Main Screen
_____________________________________________________________________________
1)   Intel(R) NetStructure(TM) DM3 Board Summary
2)   Intel(R) Dialogic(R) Board Summary           (NO BOARDS)
3)   Intel(R) NetStructure(TM) IPT Board Summary
4)   TDM Bus Settings
_____________________________________________________________________________
(s to save, x to save & quit, q to quit) the configuration
? for help and ! for navigation help

You can only configure one board at a time. Enter the number associated
with the product category of the board you want to configure :1
```

Selecting option 3 from the Intel® Dialogic® Configuration Manager - Main Screen invokes the *pmac_cfg.sh* utility.

Proceed with Section 3.5, “Using the Intel® NetStructure™ IPT Series Configuration Utility (pmac_cfg.sh)”, on page 21.

## 3.5 Using the Intel® NetStructure™ IPT Series Configuration Utility (pmac_cfg.sh)

Proceed as follows:

1. Press Enter to display the NetStructure IPT Series Board Configuration - Main Screen.

```
  ..................................................
   NetStructure IPT Board Configuration - Main Screen
  ..................................................
  This is a summary of the current board configuration
_____________________________________________________________
Board   Board
Number  AUID    Slot    Bus     Enabled Configured
268     50285   12      1       Yes     No
_____________________________________________________________
.    You should configure or disable each board shown.     .
_____________________________________________________________
Enter the number of the board to configure,
R to Restore previous settings,
or Q to Quit:
```

   For information about each parameter accessible through the NetStructure IPT Board Configuration utility, refer to Chapter 4, “pmac.cfg File Parameter Reference”. Online help is also available for each parameter accessed through the NetStructure IPT Series Board Configuration utility. To access the online help, type a question mark (?) instead of a value from any parameter screen.

2. Type the board number of the board to configure (board numbers are displayed on the left of the Main Screen). To select the Intel® NetStructure IPT Series board in this example, type the number 268.

   The NetStructure IPT Network Interface Configuration screen is displayed. For example:

```
Retrieving Board Settings...

  ....................................................
     NetStructure IPT Network Interface Configuration
  ....................................................
_____________________________________________________________
(read only)......Board Bus/Slot: 268
(read only).............PCI Slot: 12
(read only)......PCI Bus Number: 1
(read only).................AUID: 50285
_____________________________________________________________
1) Basic Parameters: frequently changed items of all types.
2) Advanced: IP Configuration.
3) Advanced: Call Default Parameters.
4) Advanced: Call Progress Tone Parameters.
5) Advanced: RFC2833 Parameters.
6) Advanced: Driver Parameters.
7) Disable this board.
_____________________________________________________________
Enter the menu number for the parameters you wish to modify.
S to Save and return to the Main Screen, or
C to Cancel and return to the Main Screen.
```

   ***Note:*** The Advanced parameter options (options 2 through 6) are not supported by the *pmac_cfg.sh* utility at this time. These parameters are modifiable by manually editing the *pmac.cfg* file. For details, refer to Section 3.7, "Completing the Board Configuration Utility (config.sh)", on page 36.

3. Type the number `1` and press Enter. The Basic Parameters Configuration screen is displayed. This screen contains the current board settings for the board selected.

```
  ....................................................
              Basic Parameters Configuration
  ....................................................

_____________________________________________________________
(read only)..............Board Bus/Slot: 268
1) (per board).............Network Speed:
2) (per board).......Primary Port Number:
3) (per board).......CURRENT Port Number:
4) (per board).....CURRENT.Entity Number: 1
5) (per board)......................Mode:
6) (per board)..................Failover:
7) (per board)...DefaultTimeslotEncoding:
_____________________________________________________________
P) (varies).............Propagation Rule: None
_____________________________________________________________
8) (per entity)..............IPv4Address:
9) (per entity).............UDPPortStart:
10) (per entity).NumUDPPortsPerIPAddress:
11) (per entity).............IPv4NetMask:
12) (per entity)......IPv4GatewayAddress:
_____________________________________________________________
Enter the menu number for the parameters you wish to modify.
P to change the Propagation Rule, or
Hit Enter to return to the Board Configuration Screen.
```

4. Type the number `1` and press Enter to modify the network speed. The Set Network Type and Speed screen is displayed.

```
.............................................................
.                Set Network Type and Speed                 .
.............................................................
_____________________________________________________________
Choose 1 if you are connected to a 100Base-T network.
Choose 2 if you are connected to a 1000Base-T network.
_____________________________________________________________
1 -  100Base-T
2 - 1000Base-T
```

```
_____________________________________________________________
Currently:  Base-T
_____________________________________________________________
Enter a new value or press ? for help or
press Enter to return to the previous screen:
```

5. If you are connecting to a 100Base-Tx network, press the number `1`. If you are connecting to a 1000Base-T network, type the number `2`. The Basic Parameters Configuration screen is displayed with the new value.

```
  ..................................................
            Basic Parameters Configuration
  ..................................................
_____________________________________________________________
(read only)..............Board Bus/Slot: 268

1) (per board).............Network Speed: 1000
2) (per board).......Primary Port Number:
3) (per board).......CURRENT Port Number:
4) (per board).....CURRENT.Entity Number: 1
5) (per board).....................Mode:
6) (per board)..................Failover:
7) (per board)...DefaultTimeslotEncoding:
_____________________________________________________________
P) (varies).............Propagation Rule: None
_____________________________________________________________
8) (per entity)..............IPv4Address:
9) (per entity).............UDPPortStart:
10) (per entity).NumUDPPortsPerIPAddress:
11) (per entity).............IPv4NetMask:
12) (per entity)......IPv4GatewayAddress:
_____________________________________________________________
Enter the menu number for the parameters you wish to modify.
P to change the Propagation Rule, or
Hit Enter to return to the Board Configuration Screen.
```

6. Type the number `2` and press Enter to modify the primary port number. The Set PRIMARY Port Number screen is displayed.

```
................................................
.           Set PRIMARY Port Number            .
................................................
_____________________________________________
This screen sets the PRIMARY Port on the board.
It automatically changes the CURRENT Port to
which other port related settings are applied.
The port number must be 0 or 1.
_____________________________________________
Currently:
_____________________________________________
Enter a new value or press ? for help or
press Enter to return to the previous screen:1
```

7. Type the number of the primary port, either `0` or `1`.The Basic Parameters Configuration screen is displayed with the new value.

```
  ..................................................
            Basic Parameters Configuration
  ..................................................
_____________________________________________________________
(read only)..............Board Bus/Slot: 268

1) (per board).............Network Speed: 1000
2) (per board).......Primary Port Number: 0
3) (per board).......CURRENT Port Number:
4) (per board).....CURRENT.Entity Number: 1
5) (per board).....................Mode:
6) (per board)..................Failover:
7) (per board)...DefaultTimeslotEncoding:
_____________________________________________________________
P) (varies).............Propagation Rule: None
_____________________________________________________________
8) (per entity)..............IPv4Address:
9) (per entity).............UDPPortStart:
10) (per entity).NumUDPPortsPerIPAddress:
11) (per entity).............IPv4NetMask:
```

```
12) (per entity).....IPv4GatewayAddress:
_____________________________________________________________
Enter the menu number for the parameters you wish to modify.
P to change the Propagation Rule, or
Hit Enter to return to the Board Configuration Screen.
```

8. Type the number `3` and press Enter to modify the current port number. The Set CURRENT Port Number screen is displayed

```
.............................................
.          Set CURRENT Port Number          .
.............................................
_____________________________________________
This screen sets the CURRENT Port to which all
port related changes will be applied. This does
NOT change the Primary Port.
The port number must be 0 or 1.

_____________________________________________
Currently:  0

_____________________________________________
Enter a new value or press ? for help or
press Enter to return to the previous screen:
```

9. Type the number of the current port, either `0` or `1`. The Basic Parameters Configuration screen is displayed with the new value.

```
  ...................................................
            Basic Parameters Configuration
  ...................................................
_____________________________________________________________
(read only)..............Board Bus/Slot: 268

1) (per board).............Network Speed: 1000
2) (per board).......Primary Port Number: 0
3) (per board).......CURRENT Port Number: 0
4) (per board).....CURRENT.Entity Number: 1
5) (per board).....................Mode:
6) (per board)...................Failover:
7) (per board)...DefaultTimeslotEncoding:
_____________________________________________________________
P) (varies).............Propagation Rule: None
_____________________________________________________________
8) (per entity)..............IPv4Address:
9) (per entity).............UDPPortStart:
10) (per entity).NumUDPPortsPerIPAddress:
11) (per entity).............IPv4NetMask:
12) (per entity)......IPv4GatewayAddress:
_____________________________________________________________
Enter the menu number for the parameters you wish to modify.
P to change the Propagation Rule, or
Hit Enter to return to the Board Configuration Screen.
```

10. Type the number `4` and press Enter to modify the current entity number. The Set NetStructure IPT Entity Number screen is displayed.

```
.............................................
.     Set NetStructure IPT Entity Number    .
.............................................
_____________________________________________
The entity number must be in the range of 1-4.

_____________________________________________
Currently: 1

_____________________________________________
Enter a new value or press ? for help or
press Enter to return to the previous screen:
```

11. Type a number `1` to `4` for the current entity number. The Basic Parameters Configuration screen is displayed with the new value.

```
  ...................................................
            Basic Parameters Configuration
  ...................................................
_____________________________________________________________
(read only)..............Board Bus/Slot: 268
```

```
1) (per board).............Network Speed: 1000
2) (per board).......Primary Port Number: 0
3) (per board).......CURRENT Port Number: 0
4) (per board).....CURRENT.Entity Number: 1
5) (per board).....................Mode:
6) (per board)..................Failover:
7) (per board)...DefaultTimeslotEncoding:
_____________________________________________________________
P) (varies).............Propagation Rule: None
_____________________________________________________________
8) (per entity)..............IPv4Address:
9) (per entity).............UDPPortStart:
10) (per entity).NumUDPPortsPerIPAddress:
11) (per entity).............IPv4NetMask:
12) (per entity)......IPv4GatewayAddress:
_____________________________________________________________
Enter the menu number for the parameters you wish to modify.
P to change the Propagation Rule, or
Hit Enter to return to the Board Configuration Screen.
```

12. Type the number `5` and press Enter to modify the processing mode. The Select Processing Mode screen is displayed.

```
................................................
.           Select Processing Mode             .
................................................
_____________________________________________________
Load Sharing mode is not yet supported so this
function is disabled. Fallback mode is enabled
as the default and only supported mode.
If this port is currently Off it will be set to
Fallback if you select 2, or left Off if you
press enter.
Choose 2 if you wish to use Fallback.
_____________________________________________________
1 - LoadSharing
2 - Fallback
_____________________________________________________
Currently:
_____________________________________________________
Enter a new value or press ? for help or
press Enter to return to the previous screen:
```

13. Type the number `2` to select Fallback as the processing method.

    ***Note:*** LoadSharing, option 1, is not currently supported.

    The Basic Parameters Configuration screen is displayed with the new value.

```
  ....................................................
            Basic Parameters Configuration
  ....................................................
_____________________________________________________________
(read only)..............Board Bus/Slot: 268

1) (per board).............Network Speed: 1000
2) (per board).......Primary Port Number: 0
3) (per board).......CURRENT Port Number: 0
4) (per board).....CURRENT.Entity Number: 1
5) (per board).....................Mode: 2
6) (per board)..................Failover:
7) (per board)...DefaultTimeslotEncoding:
_____________________________________________________________
P) (varies).............Propagation Rule: None
_____________________________________________________________
8) (per entity)..............IPv4Address:
9) (per entity).............UDPPortStart:
10) (per entity).NumUDPPortsPerIPAddress:
11) (per entity).............IPv4NetMask:
12) (per entity)......IPv4GatewayAddress:
_____________________________________________________________
Enter the menu number for the parameters you wish to modify.
P to change the Propagation Rule, or
Hit Enter to return to the Board Configuration Screen.
```

14. Type the number `6` and press Enter to activate /deactivate failover. The Activate/Deactivate Failover screen is displayed.

```
.............................................
.       Activate/Deactivate Failover        .
.............................................
_____________________________________________
1 - Failover
2 - No_Failover

_____________________________________________
Currently:

_____________________________________________
Enter a new value or press ? for help or
press Enter to return to the previous screen: 1
```

15. Type the number `2` to deactivate failover.

    ***Note:*** Failover is not currently supported.

    The Basic Parameters Configuration screen is displayed with the new value.

```
  ....................................................
             Basic Parameters Configuration
  ....................................................
_____________________________________________________________
(read only)..............Board Bus/Slot: 268

1) (per board).............Network Speed: 1000
2) (per board).......Primary Port Number: 0
3) (per board).......CURRENT Port Number: 0
4) (per board).....CURRENT.Entity Number: 1
5) (per board)......................Mode: 2
6) (per board)..................Failover: 2
7) (per board)...DefaultTimeslotEncoding:

_____________________________________________________________
P) (varies).............Propagation Rule: None
_____________________________________________________________
8) (per entity)..............IPv4Address:
9) (per entity).............UDPPortStart:
10) (per entity).NumUDPPortsPerIPAddress:
11) (per entity).............IPv4NetMask:
12) (per entity)......IPv4GatewayAddress:
_____________________________________________________________
Enter the menu number for the parameters you wish to modify.
P to change the Propagation Rule, or
Hit Enter to return to the Board Configuration Screen.
```

16. Type the number `7` and press Enter to modify the encoding method. The Set PCM Encoding Method screen is displayed.

```
................................................
.          Set PCM Encoding Method             .
................................................
________________________________________________
Select one of the following:

________________________________________________
1 - uLAW (standard for T1)
2 - ALAW (standard for E1)
3 - PCM ()
4 - NoConversion (treat as raw data)

________________________________________________
Currently:

________________________________________________
Enter a new value or press ? for help or
press Enter to return to the previous screen:
```

17. Type a number `1` to `4` to select the encoding method. The Basic Parameters Configuration screen is displayed with the new value.

```
  ....................................................
             Basic Parameters Configuration
  ....................................................
_____________________________________________________________
(read only)..............Board Bus/Slot: 268

1) (per board).............Network Speed: 1000
2) (per board).......Primary Port Number: 0
3) (per board).......CURRENT Port Number: 0
4) (per board).....CURRENT Entity Number: 1
5) (per board)......................Mode: 2
6) (per board)..................Failover: 2
7) (per board)...DefaultTimeslotEncoding: 3
```

```
_____________________________________________________
P) (varies).............Propagation Rule: None
_____________________________________________________
8) (per entity).............IPv4Address:
9) (per entity).............UDPPortStart:
10) (per entity).NumUDPPortsPerIPAddress:
11) (per entity).............IPv4NetMask:
12) (per entity)......IPv4GatewayAddress:
_____________________________________________________
Enter the menu number for the parameters you wish to modify.
P to change the Propagation Rule, or
Hit Enter to return to the Board Configuration Screen.
```

18. Type the letter `P` to set the propagation rules used to create the *pmac.cfg* file. The Set Propagation Rule screen is displayed.

```
.............................................
.            Set Propagation Rule           .
.............................................
_____________________________________________
The propagation rule allows you to duplicate
common values across multiple entities or ports.
Note that IP Addresses will be assigned starting
with Port0 Entity1 and each subsequent Entity's
address will increase by one.
All other values will be duplicated exactly.
_____________________________________________
1 - None: No propagation of settings
2 - This_Port: all entities on the current port
3 - All_Ports: all ports on the current board
_____________________________________________
Currently: None
_____________________________________________
Enter a new value or press ? for help or
press Enter to return to the previous screen:
```

19. Type the number of the propagation rule you want to use. Depending on your selection, propagation will occur as follows:

    Option 1 - None
    No propagation of settings. The user sets each parameter for each entity on each port.

    Option 2 - This_Port
    Propagate settings to all entities on the current port. The user sets the parameters for the current entity and the parameter settings are duplicated for all entities on the current port. The user will then have to set the parameters for the second port (and entities) using option 1 or option 2.

    Option 3 - All_Ports
    Propagate to all entities on all active ports on a board. The user sets the parameters for the current entity and the parameter settings are duplicated for all entities on the current port and all entities on the second active port.

    ***Note:*** This utility assumes that subsequent IP addresses increment by one starting with the IP address assigned to Port0Entity1. If this is not true, the *pmac.cfg* file must be manually updated to reflect the actual IP addresses. For details about manually editing the *pmac.cfg* file, refer to Section 3.7, "Completing the Board Configuration Utility (config.sh)", on page 36.

    The Basic Parameters Configuration screen is displayed with the new value.

```
.....................................................
            Basic Parameters Configuration
.....................................................
_____________________________________________________
(read only)..............Board Bus/Slot: 268
```

```
1) (per board).............Network Speed: 1000
2) (per board).......Primary Port Number: 0
3) (per board).......CURRENT Port Number: 0
4) (per board).....CURRENT.Entity Number: 1
5) (per board).....................Mode: 2
6) (per board)..................Failover: 2
7) (per board)...DefaultTimeslotEncoding: 3
_____________________________________________________________
P) (varies).............Propagation Rule: All_Ports
_____________________________________________________________
8) (per entity).............IPv4Address:
9) (per entity).............UDPPortStart:
10) (per entity).NumUDPPortsPerIPAddress:
11) (per entity).............IPv4NetMask:
12) (per entity)......IPv4GatewayAddress:
_____________________________________________________________
Enter the menu number for the parameters you wish to modify.
P to change the Propagation Rule, or
Hit Enter to return to the Board Configuration Screen.
```

20. Type the number `8` and press Enter to modify the IP address for the current entity. The Set Board IP Address screen is displayed.

```
.............................................................
.                Set Board IP Address                       .
.............................................................
_____________________________________________________________
Setting Value for: 1000BT Port0 Entity1
Propagate to: All_Ports
_____________________________________________________________
The board IP address must be in the format 123.456.789.012.
IMPORTANT: If the Propagate Rule is other than None, the
IP address entered will be set for Port0, Entity1 and all
subsequent entries will be incremented from there when the
values are saved.
_____________________________________________________________
Currently:
_____________________________________________________________
Enter a new value or press ? for help or
press Enter to return to the previous screen:
```

21. Type the IP address of the current entity in the form 123.123.123.123 (for example, 146.152.108.156) and then press Enter. The Basic Parameters Configuration screen is displayed with the new value.

```
  .....................................................
             Basic Parameters Configuration
  .....................................................
_____________________________________________________________
(read only)...............Board Bus/Slot: 268

1) (per board).............Network Speed: 1000
2) (per board).......Primary Port Number: 0
3) (per board).......CURRENT Port Number: 0
4) (per board).....CURRENT Entity Number: 1
5) (per board).....................Mode: 2
6) (per board)..................Failover: 2
7) (per board)...DefaultTimeslotEncoding: 3
_____________________________________________________________
P) (varies).............Propagation Rule: All_Ports
_____________________________________________________________
8) (per entity).............IPv4Address: 146.152.108.156
9) (per entity).............UDPPortStart:
10) (per entity).NumUDPPortsPerIPAddress:
11) (per entity).............IPv4NetMask:
12) (per entity)......IPv4GatewayAddress:
_____________________________________________________________
Enter the menu number for the parameters you wish to modify.
P to change the Propagation Rule, or
Hit Enter to return to the Board Configuration Screen.
```

22. Type the number `9` and press Enter to modify the starting UDP port number for the current entity. The Set Starting UDP Port Number screen is displayed.

```
.............................................
.         Set Starting UDP Port Number        .
.............................................
_____________________________________________
Setting Value for: 1000BT Port0 Entity1
```

```
Propagate to: All_Ports
_____________________________________________________
Currently:
_____________________________________________________
Enter a new value or press ? for help or
press Enter to return to the previous screen:
```

23. Type the initial UDP port number (for example, 2000) and then press Enter. The Basic Parameters Configuration screen is displayed with the new value.

```
  ....................................................
            Basic Parameters Configuration
  ....................................................
_____________________________________________________________
(read only)..............Board Bus/Slot: 268

1) (per board).............Network Speed: 1000
2) (per board).......Primary Port Number: 0
3) (per board).......CURRENT Port Number: 0
4) (per board).....CURRENT Entity Number: 1
5) (per board).....................Mode: 2
6) (per board)..................Failover: 2
7) (per board)...DefaultTimeslotEncoding: 3
_____________________________________________________________
P) (varies).............Propagation Rule: All_Ports
_____________________________________________________________
8) (per entity)..............IPv4Address: 146.152.108.156
9) (per entity).............UDPPortStart: 2000
10) (per entity).NumUDPPortsPerIPAddress:
11) (per entity).............IPv4NetMask:
12) (per entity)......IPv4GatewayAddress:
_____________________________________________________________
Enter the menu number for the parameters you wish to modify.
P to change the Propagation Rule, or
Hit Enter to return to the Board Configuration Screen.
```

24. Type the number `10` and press Enter to set the number of UDP ports. The Set Number of UDP Ports screen is displayed.

```
..............................................
.            Set Number of UDP Ports          .
..............................................
_____________________________________________________
Setting Value for: 1000BT Port0 Entity1
Propagate to: All_Ports
_____________________________________________________
Currently:
_____________________________________________________
Enter a new value or press ? for help or
press Enter to return to the previous screen:
```

25. Type the number of UDP ports (for example, 1346) and then press Enter. The Basic Parameters Configuration screen is displayed with the new value.

```
  ....................................................
            Basic Parameters Configuration
  ....................................................
_____________________________________________________________
(read only)..............Board Bus/Slot: 268

1) (per board).............Network Speed: 1000
2) (per board).......Primary Port Number: 0
3) (per board).......CURRENT Port Number: 0
4) (per board).....CURRENT Entity Number: 1
5) (per board).....................Mode: 2
6) (per board)..................Failover: 2
7) (per board)...DefaultTimeslotEncoding: 3
_____________________________________________________________
P) (varies).............Propagation Rule: All_Ports
_____________________________________________________________
8) (per entity)..............IPv4Address: 146.152.108.156
9) (per entity).............UDPPortStart: 2000
10) (per entity).NumUDPPortsPerIPAddress: 1346
11) (per entity).............IPv4NetMask:
12) (per entity)......IPv4GatewayAddress:
_____________________________________________________________
Enter the menu number for the parameters you wish to modify.
P to change the Propagation Rule, or
Hit Enter to return to the Board Configuration Screen.
```

26. Type the number `11` to modify the subnet mask and press Enter. The Set Board Subnet Mask screen is displayed.

```
.............................................................
.                Set Board Subnet Mask                      .
.............................................................
_____________________________________________________________
Setting Value for: 1000BT Port0 Entity1
Propagate to: All_Ports
_____________________________________________________________
The board subnet mask must be in IP address format.
 e.g. 255.255.255.0
_____________________________________________________________
Currently:
_____________________________________________________________
Enter a new value or press ? for help or
press Enter to return to the previous screen:
```

27. Type the subnet mask in the form 123.123.123.123 (for example, 255.255.255.0) and press Enter. The Basic Parameters Configuration screen is displayed with the new value.

```
  ....................................................
             Basic Parameters Configuration
  ....................................................
_____________________________________________________________
(read only)..............Board Bus/Slot: 268

1) (per board).............Network Speed: 1000
2) (per board).......Primary Port Number: 0
3) (per board).......CURRENT Port Number: 0
4) (per board).....CURRENT Entity Number: 1
5) (per board)......................Mode: 2
6) (per board)...................Failover: 2
7) (per board)...DefaultTimeslotEncoding: 3

_____________________________________________________________
P) (varies).............Propagation Rule: All_Ports
_____________________________________________________________
8) (per entity)..............IPv4Address: 146.152.108.156
9) (per entity).............UDPPortStart: 2000
10) (per entity).NumUDPPortsPerIPAddress: 1346
11) (per entity).............IPv4NetMask: 255.255.255.0
12) (per entity)......IPv4GatewayAddress:
_____________________________________________________________
Enter the menu number for the parameters you wish to modify.
P to change the Propagation Rule, or
Hit Enter to return to the Board Configuration Screen.
```

28. Type the number `12` and press Enter to modify the gateway IP address. The Set Gateway IP address screen is displayed.

```
.............................................................
.                Set Gateway IP Address                     .
.............................................................
_____________________________________________________________
Setting Value for: 1000BT Port0 Entity1
Propagate to: All_Ports
_____________________________________________________________
The gateway IP address must be in the format 123.123.123.123.
_____________________________________________________________
Currently:
_____________________________________________________________
Enter a new value or press ? for help or
press Enter to return to the previous screen:
```

29. Type the port gateway IP address in the form 123.123.123.123 (for example, 192.168.1.1) and press Enter. The Basic Parameters Configuration screen is displayed with the new value.

```
  ....................................................
             Basic Parameters Configuration
  ....................................................
_____________________________________________________________
(read only)..............Board Bus/Slot: 268

1) (per board).............Network Speed: 1000
2) (per board).......Primary Port Number: 0
3) (per board).......CURRENT Port Number: 0
4) (per board).....CURRENT Entity Number: 1
5) (per board)......................Mode: 2
```

```
6) (per board).................Failover: 2
7) (per board)...DefaultTimeslotEncoding: 3
_____________________________________________________________
P) (varies).............Propagation Rule: All_Ports
_____________________________________________________________
8) (per entity).............IPv4Address: 146.152.108.156
9) (per entity).............UDPPortStart: 2000
10) (per entity).NumUDPPortsPerIPAddress: 1346
11) (per entity).............IPv4NetMask: 255.255.255.0
12) (per entity)......IPv4GatewayAddress: 192.168.1.1
_____________________________________________________________
Enter the menu number for the parameters you wish to modify.
P to change the Propagation Rule, or
Hit Enter to return to the Board Configuration Screen.
```

30. Hit Enter to return to the NetStructure IPT Network Interface Configuration screen.

```
  ....................................................
     NetStructure IPT Network Interface Configuration
  ....................................................
_____________________________________________________________
(read only)......Board Bus/Slot: 268
(read only).............PCI Slot: 12
(read only)......PCI Bus Number: 1
(read only).................AUID: 50285
_____________________________________________________________
1) Basic Parameters: frequently changed items of all types.
2) Advanced: IP Configuration.
3) Advanced: Call Default Parameters.
4) Advanced: Call Progress Tone Parameters.
5) Advanced: RFC2833 Parameters.
6) Advanced: Driver Parameters.
7) Disable this board.
_____________________________________________________________
Enter the menu number for the parameters you wish to modify.
S to Save and return to the Main Screen, or
C to Cancel and return to the Main Screen.
```

31. Type the letter `S` to save the parameter settings and return to the Main Screen.

```
  ..................................................
   NetStructure IPT Board Configuration - Main Screen
  ..................................................
  This is a summary of the current board configuration
_____________________________________________________________
Board   Board
Number  AUID    Slot    Bus     Enabled Configured
268     50285   12      1       Yes     Yes
_____________________________________________________________
.    You should configure or disable each board shown.     .
_____________________________________________________________
Enter the number of the board to configure,
R to Restore previous settings,
or Q to Quit:
```

32. If you need to configure other entities or ports on the same board, repeat this procedure starting from Step 2 skipping Step 4 through Step 7 and Step 12 through Step 17 (i.e., reset only the **Current Port Number** and **Current Port Entity** per board parameters).

33. If you need to configure another board, repeat this procedure for each board starting from Step 2.

34. If you need to disable a board:

    34a. Type the board number of the board to configure (board numbers are displayed on the left of the Main Screen.) To select the Intel® NetStructure IPT Series board in this example, enter the number `268`. The NetStructure IPT Network Interface Configuration screen is displayed.

```
Retrieving Board Settings...
```

```
  ....................................................
     NetStructure IPT Network Interface Configuration
  ....................................................
_____________________________________________________________
(read only)......Board Bus/Slot: 268
(read only).....PCI Slot: 12
(read only)......PCI Bus Number: 1
(read only).............AUID: 50285
_____________________________________________________________
1) Basic Parameters: frequently changed items of all types.
2) Advanced: IP Configuration.
3) Advanced: Call Default Parameters.
4) Advanced: Call Progress Tone Parameters.
5) Advanced: RFC2833 Parameters.
6) Advanced: Driver Parameters.
7) Disable this board.
_____________________________________________________________
Enter the menu number for the parameters you wish to modify.
S to Save and return to the Main Screen, or
C to Cancel and return to the Main Screen.
```

***Note:*** The Advanced parameter options (options 2 through 6) are not supported at this time.

34b. Type the number `7` and press Enter. The Enable and Disable Board screen is displayed.

```
.............................................................
.                  Enable or Disable Board                  .
.............................................................
_____________________________________________________________
Choose 1 if you want to enable this board.
Selecting 2 will disable the board.
_____________________________________________________________
1 - Yes, I want to enable this board
2 - No, I want to disable this board
_____________________________________________________________
Currently: Yes
_____________________________________________________________
Enter a new value or press ? for help or
press Enter to return to the previous screen:
```

34c. Type the number `2` to disable the board (enter the number `1` to enable the board). The NetStructure IPT Network Interface Configuration is displayed.

```
  ....................................................
     NetStructure IPT Network Interface Configuration
  ....................................................
_____________________________________________________________
(read only)......Board Bus/Slot: 268
(read only).....PCI Slot: 12
(read only)......PCI Bus Number: 1
(read only).............AUID: 50285
_____________________________________________________________
1) Basic Parameters: frequently changed items of all types.
2) Advanced: IP Configuration.
3) Advanced: Call Default Parameters.
4) Advanced: Call Progress Tone Parameters.
5) Advanced: RFC2833 Parameters.
6) Advanced: Driver Parameters.
7) Disable this board.
_____________________________________________________________
Enter the menu number for the parameters you wish to modify.
S to Save and return to the Main Screen, or
C to Cancel and return to the Main Screen.
```

34d. Type the letter `S` to save the configuration settings and return to the Main Screen.

```
  ................................................
   NetStructure IPT Board Configuration - Main Screen
  ................................................
  This is a summary of the current board configuration
_____________________________________________________________
Board   Board
Number  AUID    Slot    Bus     Enabled Configured
268     50285   12      1       Yes     No
_____________________________________________________________
.    You should configure or disable each board shown.      .
_____________________________________________________________
Enter the number of the board to configure,
R to Restore previous settings,
or Q to Quit:
```

The current board configuration is displayed on the Main Screen again, and you can:

- Enter another slot number to configure another board or reset configuration parameters. The current board settings for that board are displayed as shown in Step 2.
- Enter R to restore the previous configuration settings. Then, enter a Q to quit to or return to Step 2 to restart the *pmac_cfg.sh* configuration procedure.
- Enter Q to quit. The previously saved or default parameter values will be used.

When you quit by entering a Q, processing returns to the *config.sh* utility and proceeds as follows:

- If SNMP agent software is installed, *config.sh* invokes the SNMP Agents Configuration Tool (*dlgcsnmpconf*). Refer to Section 3.6, "Using the SNMP Configuration Tool (dlgcsnmpconf)", on page 33.
- Otherwise, if you are satisfied with all configuration information, refer to Section 3.7, "Completing the Board Configuration Utility (config.sh)", on page 36.

## 3.6 Using the SNMP Configuration Tool (dlgcsnmpconf)

Once the *pmac_cfg.sh* utility is complete, the SNMP Configuration Tool (*dlgcsnmpconf*) is automatically invoked if SNMP agent software is installed. The following message is displayed:

```
SNMP configuration...
```

The procedure for configuring the SNMP agent software includes the following:

- Configuring the Community String
- Configuring Trap Destinations (Sinks)

### 3.6.1 Configuring the Community String

SNMP v1 uses community strings to provide simple access control for management information base MIB objects. If a management software tool uses an Intel® Dialogic SNMP MIB, it must use the identical community strings that the SNMP agent software is configured to use. Communities can be created in two ways:

- Configuring SNMP Communities Automatically
- Configuring SNMP Communities Manually

Both the automatic and manual configuration methods provide an opportunity to configure trap destinations.

***Note:*** If the automatic configuration process is used, the *dialogic* community is created. This community grants external management stations **read-only** access to the Intel® Dialogic MIB. However, if the external management station requires **write** access to writable SNMP objects in the Intel® Dialogic MIB, then use the instructions in Section 3.6.2, "Configuring SNMP Communities Manually", on page 34 to create a community string that grants external managers read-write access.

#### 3.6.1.1 Configuring SNMP Communities Automatically

The automatic configuration method creates the *admin* community, giving it both read and write access on the local host. The automatic method configures the Net-SNMP agent by creating the read-write *admin* community and the *dialogic* community, which is set to read-only for all external managers.

The SNMP agent software part of the configuration begins with the following messages:

```
SNMP configuration...
Dialogic SNMP Agents Configuration Tool
(C)2000-2001 Intel Corp.

You may choose to manually configure all communities and trap
sinks(destinations), or you may select an automatic configuration.  If the
automatic configuration is chosen, this tool will create the required
'admin' community and prompt you to enter trap sinks.  Selecting the manual
configuration allows you to easily create custom communities and configure
trap sinks.  If the 'admin' community does not exist yet, it may be created
the same way as other communities using the manual configuration.  Note, the
'admin' community MUST be assigned read-write priviledges or else abnormal
behavior will occur when the Intel Dialogic SNMP Agents are loaded.

Would you like to proceed with automatic configuration? (no will select
manual configuration) (y)es or (n)o?
```

Proceed as follows:

1. Type the letter `y` for automatic configuration.
2. You are asked for confirmation; Type the letter `y` again.

   The configuration tool creates and configures the *admin* and *dialogic* communities.

   Configuration continues with the following prompt:

   ```
   Configure trap sink(destination) (y)es or (n)o?
   ```

Continue with the instructions in Section 3.6.3, “Configuring Trap Destinations (Sinks)”, on page 36.

### 3.6.2 Configuring SNMP Communities Manually

The manual method allows the user to enter communities; it does not create any communities automatically. If the manual configuration method is used, then the user is responsible for creating the *admin* community with read and write privileges. If the *admin* community already exists in the Net-SNMP configuration, the configuration tool indicates that the community is detected and does not require configuration.

The SNMP agent software part of the configuration begins with the following messages:

```
SNMP configuration...
Dialogic SNMP Agents Configuration Tool
(C)2000-2001 Intel Corp.

You may choose to manually configure all communities and trap
sinks(destinations), or you may select an automatic configuration.  If the
automatic configuration is chosen, this tool will create the required
'admin' community and prompt you to enter trap sinks.  Selecting the manual
configuration allows you to easily create custom communities and configure
trap sinks.  If the 'admin' community does not exist yet, it may be created
the same way as other communities using the manual configuration.  Note, the
'admin' community MUST be assigned read-write priviledges or else abnormal
behavior will occur when the Intel Dialogic SNMP Agents are loaded.
```

```
Would you like to proceed with automatic configuration? (no will select
manual configuration) (y)es or (n)o?
```

Proceed as follows:

1. Type the letter `n` for manual configuration.

   The following prompt is displayed:

   ```
   Configure communities (access control)? (y)es or (n)o?
   ```

2. Type the letter `y` to create and configure communities. (Entering `n` skips community configuration and proceeds to the trap destination configuration prompt shown in Step 7 of this procedure.)

   If you type the letter `y`, you are prompted for the community name:

   ```
   Enter community name (leave blank to cancel):
   ```

3. If the *admin* community has not been created yet (either manually or by the automatic configuration method) then type `admin` as the community name.

   You are prompted to enter the access privileges for the community:

   ```
   Make this community read-write? (y)es or (n)o?
   ```

4. Type the letter `y` if the community will allow write requests, or the letter `n` if the community will allow only read requests.

   ***Note:*** For the *admin* community, access must be read-write.

   The next prompt asks if external managers will be allowed to use this community to access the Intel® Dialogic MIB:

   ```
   Allow external managers access with this community? (y)es or (n)o?
   ```

5. Type the letter `y` to grant access to the Intel® Dialogic MIB using this community, or the letter `n` to grant only the local host access to the MIB using this community.

   ***Note:*** For the *admin* community, local access only is recommended.

   The following prompt asks you to confirm the community configuration, for example:

   ```
   Prepared to add "rwcommunity yourcommunityname localhost" to config file.
   Proceed (y)es or (n)o?
   ```

   where *yourcommmunityname* is the community name that you entered.

6. Type the letter `y` to write the community to the configuration file (*/usr/share/snmp/snmpd.conf*).

   The configuration tool then allows you to configure additional communities:

   ```
   Add another community? (y)es or (n)o?
   ```

7. Type the letter `y` to add another community or the letter `n` to continue with trap destination configuration.

   If you type the letter y, the prompt shown in step 2 is repeated, allowing you to configure another community.

   If you type the letter `n`, the following prompt is displayed:

```
Configure trap sink(destination) (y)es or (n)o?
```

Continue with the instructions in Section 3.6.3, "Configuring Trap Destinations (Sinks)", on page 36.

## 3.6.3 Configuring Trap Destinations (Sinks)

Trap destinations are machines that are configured to receive SNMP v1 traps from managed nodes. Trap destinations are also called **trap sinks**. The configuration tool allows as many trap sinks as required by the user. If a trap sink is not reachable by the managed node, the configuration tool displays a warning message and allows the user to back out of the configuration.

After starting the Dialogic SNMP Configuration Tool and using either the automatic or manual method to configure communities, configuration continues with the following prompt:

```
Configure trap sink(destination) (y)es or (n)o?
```

Proceed as follows:

1. Type the letter `y` to configure a trap destination or the letter n to exit the configuration tool.

   If you type the letter `y`, the following prompt is displayed:

   ```
   Type host name to be trap sink:
   ```

2. Type the name of the management station that is configured to receive traps.

   The following prompt is displayed:

   ```
   Allow agent to send SNMPv1 traps to 'hostname' (y)es or (n)o?
   ```

   where *hostname* is the name of the management station that you entered.

3. Type the letter `y` to add the specified host as a trap destination.

   The prompts are repeated, allowing you to configure additional trap destination(s). When done, type `n` to exit the configuration tool and write the configuration changes to */usr/share/snmp/snmpd.conf*. A backup of the original configuration file is created as */usr/share/snmp/snmpd.conf.backup*.

Proceed with Section 3.7, "Completing the Board Configuration Utility (config.sh)", on page 36.

# 3.7 Completing the Board Configuration Utility (config.sh)

When the *config.sh* utility is complete, the following messages are displayed:

```
Configuration is complete.

If you wish to install the Hot Swap Kit or Redundant System Slot
software, please run the 'hs_bld_kernel.sh' script. Otherwise,
a system reboot is now required to initialize the Intel® software.

The Intel® system services will start automatically each time
the system is rebooted.
```

```
NOTE: To start and stop system services manually, use the dlstop and
    dlstart scripts found in /usr/dialogic/bin
```

Verify the host IP address appears as the first line in the */etc/hosts* file. In addition, the *pmac.cfg* parameter settings should be verified and any additional manual changes to the file should be addressed.

1. Update the */etc/hosts* file:

   1a. Open the */etc/hosts* file using a text editor (for example, *vi*).

   1b. Move (or add) the line to configure the host IP address so that it is the first uncommented line in the */etc/hosts* file. For example:

   ```
   146.152.112.4       testmach4
   27.0.0.1            localhost
   ```

   If the line to configure the host IP address appears after the line to configure the localhost IP address, the system will operate in loopback mode only.

2. Update */user/dialogic/cfg/pmac.cfg* file:

   2a. Open the */user/dialogic/cfg/pmac.cfg* file using a text editor (for example, *vi*).

   For detailed information about the *pmac.cfg* file, including formatting conventions, a *pmac.cfg* file example, and a description of the parameter sections, refer to Chapter 2, “pmac.cfg Details”. For information about each parameter, refer to Chapter 4, “pmac.cfg File Parameter Reference”.

   2b. Locate the subsection in the *pmac.cfg* file that contains the parameter you wish to modify and change the value is needed.

   For example, to change the timer setting for inbound messages from the default value of 50 to 100, you would go to the Driver Configuration Section of the *pmac.cfg* file and locate the **InboundTimer** parameter. Edit the line to read:

   ```
   InboundTimer=100
   ```

   2c. Repeat Step 2b for any other parameters that you wish to modify.

   2d. Save and close the *pmac.cfg* file. When the system is initialized, the modified parameters will take effect.

Continue with any additional configuration procedures that are applicable to your system:

- If you are using a third-party board as the clock master, see Section 3.8, “Assigning Time Slots When Using a Third-Party Board as Clock Master”, on page 38.
- If you have SNMP agent software installed, see Section 3.9, “Transferring SNMP Agent Files to the Network Management Station”, on page 38.

When you are satisfied with all configuration information, proceed with Section 3.10, “Initializing the System”, on page 39.

## 3.8 Assigning Time Slots When Using a Third-Party Board as Clock Master

Third-party boards and Intel® Dialogic boards must not transmit data on the same TDM bus time slots. Also, the third-party technology (clock master) must execute before Intel® NetStructure IPT Series boards (slaves) in the startup sequence. Transmit time slots for Intel® NetStructure IPT Series boards are assigned during initialization as specified in the */usr/dialogic/cfg/.sctsbase* file. Use the following procedure to modify the time slot for Intel® NetStructure IPT Series boards to be a value greater than 0; then, the third-party board can use time slots in the beginning of the time slot range.

***Notes:*** ***1.*** It is assumed that the third-party technology can use a range of time slots starting at 0.

***2.*** The third-party board must be configured as both the primary clock master and the reference master on the TDM bus.

Proceed as follows:

1. Edit */usr/dialogic/cfg/.sctsbase*.

2. Add a line to */usr/dialogic/cfg/.sctsbase* that will cause the starting time slot for Intel® NetStructure boards to be a value greater than 0. For example, if the third-party board uses time slots 0 through 1023, write the value "1024" to */usr/dialogic/cfg/.sctsbase* by adding this number as the first line in the file:

   ```
   1024
   ```

3. Save the */usr/dialogic/cfg/.sctsbase* file.

Intel® NetStructure boards will now use time slots above those specified in the *.sctsbase* file.

If you have SNMP agent software installed, see Section 3.9, "Transferring SNMP Agent Files to the Network Management Station", on page 38. Otherwise, proceed with Section 3.10, "Initializing the System", on page 39.

## 3.9 Transferring SNMP Agent Files to the Network Management Station

The SNMP agent MIB files must be installed on the network management station. In addition, the *SNMP Agent Software Administrative Guide* should be made available at the network management station. The files can be sent from the managed node to the network management station using any method you are familiar with, such as e-mail or FTP.

1. Copy the SNMP agent MIBs to a directory accessible to your network management application. The MIBs are stored in */usr/dialogic/cfg* when the SNMP agent software is installed on the managed node. For more information, consult the network management application installation instructions.

2. Copy the *SNMP Agent Software Administrative Guide* to the network management station. If the Intel® Dialogic documentation was installed on the managed node, documentation files (*.html* and *.pdf* versions) are stored in *dialogic/docs*.

Proceed with Section 3.10, "Initializing the System", on page 39.

## 3.10 Initializing the System

The new configuration settings will not take effect until the system is initialized. The system must be rebooted in order to start the software for the first time. Rebooting the system initializes all the Intel® Dialogic products in the system and also starts the SNMP Agent extension software. Before rebooting, make sure you perform all of the necessary configuration procedures.

***Note:*** Once the system is initialized for the first time, you do not need to reboot the system to implement additional configuration changes. The system can be re-initialized using the *dlstart* and *dlstop* (or *stopbrd* and *startbrd*) utilities. For a detailed procedure, refer to Section 3.11, "Reconfiguring a System", on page 39.

To initialize the system for the first time, proceed as follows:

1. Shut down the system and restart it. Rebooting the system initializes all the Intel® NetStructure products in the system. Problems on initial startup are typically caused by errors in your configuration settings

2. To display information about boards that are present in the system and recognized by the device driver, enter the command:

   ```
   pbl
   ```

   The Physical Board Locator (`pbl`) tool displays the board type, PCI bus and slot number, and other useful information for each board. For more information about the `pbl` tool, see the *System Release Administration Guide*.

3. After starting the system for the first time, you may want to use some of the tools provided by the system software to verify that your system is operating properly. Look in the *dialogic/demos* directory for demo programs.

If you have problems, see the Troubleshooting section of the *System Release Administration Guide*. Problems on initial startup are typically caused by errors in your configuration settings.

## 3.11 Reconfiguring a System

Once the system is initialized for the first time, the board (or the system) must be stopped and then re-started to make any additional configuration changes. You only have to reboot the system for the initial system startup. To stop and then restart the board, use the *stopbrd* and *startbrd* utilities.

1. Before you stop the board or system, the application must be stopped and the application must ensure that all channels have been closed.

2. To stop a single board, enter the command:

   ```
   /usr/dialogic/bin/stopbrd
   ```

   To stop the entire system, enter the command:

   ```
   /usr/dialogic/bin/dlstop
   ```

3. Modify configuration parameters by rerunning the *pmac_cfg.sh* utility or by manually editing the *pmac.cfg* file as necessary.

   For details about running the *pmac_cfg.sh* utility, refer to Section 3.5, "Using the Intel® NetStructure™ IPT Series Configuration Utility (pmac_cfg.sh)", on page 21.

   For details about manually editing the *pmac.cfg* file, refer to Section 3.7, "Completing the Board Configuration Utility (config.sh)", on page 36.

4. To start a single board, enter the command:

   ```
   /usr/dialogic/bin/startbrd
   ```

   To start the entire system, enter the command:

   ```
   /usr/dialogic/bin/dlstart
   ```

   ***Note:*** Startup should be performed only after the board or system is stopped, that is, after a `stopbrd` or `dlstop` command.

***Note:*** After making configuration changes using either the *pmac_cfg.sh* utility or by editing the *pmac.cfg* file directly, be aware that the changes are not fully implemented until the new download has completed.

For detailed procedures about administrative tasks such as *stopbrd* and *startbrd*, see the *System Release for Linux Administration Guide* and the *SNMP Agent Software for Linux Administration Guide*.

# pmac.cfg File Parameter Reference 4

This section lists and describes all parameters contained in the *pmac.cfg* file. Parameters are listed in the same order as they appear in the *pmac.cfg* file and they are grouped according to the *pmac.cfg* file subsections.The following subsections are contained in the *pmac.cfg* file:



## 4.1 Board Identification

The Board Identification section of the *pmac.cfg* file includes the following parameters:

- AUID
- BoardCondition
- BoardPresent
- BoardEnabled
- PhysicalShelf
- PhysicalSlot
- PciBusNumber
- PciSlotNumber
- DriverBoardId

### AUID

**Description:** (Addressable Unit Identifier) The **AUID** is a unique string of numbers that identifies an Intel® Dialogic™ system component with which communications may be initiated.

In the context of the *pmac.cfg* file, the AUID is a unique identifier for an Intel® NetStructure IPT Series board.

**Values:** A positive integer or hexadecimal value

**Guidelines:** The **AUID** parameter is read-only and is set by the Intel® Dialogic System Software.

## BoardCondition

**Description:** The **BoardCondition** parameter indicates the current state of the board as determined by the Intel® Dialogic System Software.

**Values:**

- Good
- Bad

**Guidelines:** The **BoardCondition** parameter is read-only.

## BoardPresent

**Description:** The **BoardPresent** parameter indicates whether or not the board is physically present in the system and was detected by the Intel® Dialogic System Software.

**Values:**

- Yes
- No

**Guidelines:** The **BoardPresent** parameter is read-only and is determined by the Intel® Dialogic System Software.

A value of No is displayed if you enter configuration data for a board that is not in the system or if a board is improperly installed or malfunctioning.

## BoardEnabled

**Description:** The **BoardEnabled** parameter determines whether or not the system should start the board when the dlstart utility is used when the system is started.

**Values:**

- Yes [default]
- No

**Guidelines:** The **BoardEnabled** parameter is read/write. You can temporarily suspend the use of a board by setting this parameter to No.

## PhysicalShelf

**Description:** The **PhysicalShelf** parameter denotes the number of the shelf in which the board is installed. Individual cPCI chassis can be assigned unique shelf identification numbers. The shelf

identification number for a chassis can then be reported by any board that is plugged into the chassis backplane.

**Values:** A positive integer or hexadecimal value

**Guidelines:** The **PhysicalShelf** parameter is determined by the cPCI chassis. It only applies to cPCI boards and cannot be modified through the *pmac.cfg* file.

### PhysicalSlot

**Description:** The **PhysicalSlot** parameter specifies the number of the physical slot in which the cPCI board is installed.

**Values:** A positive integer or hexadecimal value

**Guidelines:** The **PhysicalSlot** parameter is read-only and only applies to cPCI boards. A value of 1 indicates the first slot on the left.

### PciBusNumber

**Description:** The **PCIBusNumber** parameter indicates the number of the PCI bus on which the board is installed.

**Values:** A positive integer or hexadecimal value

**Guidelines:** The **PciBusNumber** parameter is read-only.

### PciSlotNumber

**Description:** The **PCISlotNumber** denotes the number of the PCI slot in which the board is installed.

**Values:** A positive integer or hexadecimal value

**Guidelines:** The **PCISlotNumber** parameter is read-only.

### DriverBoardId

**Description:** The **DriverBoardId** parameter specifies the identification number that the Intel® NetStructure IPT Series device driver assigns to the board.

**Values:** A positive integer or hexadecimal value

**Guidelines:** The **DriverBoardId** parameter is read-only and is determined by the Intel® Dialogic System Software.

## 4.2 Software Constants

The Software Constants section of the *pmac.cfg* file contains parameters that provide factory-default settings (non-modifiable by the user) for the Intel® NetStructure IPT Series board, including information about the maximum number of Context-Termination associations. The Context-Termination associations supported by Intel® NetStructure IPT Series boards are

modelled after the concepts outlined in the Megaco (ITU H.248) standard. The Software Constants section contains the following parameters:

- SerialNumber
- HardwareVersion
- BootROMVersion
- MaxNumDSPs
- NumEthernet100BT
- NumEthernet1000BT
- ManufacturerData
- IPTBoardSoftwareVersion
- DspSoftwareVersion
- MaxNumContexts
- MaxNumTerminationsPerContexts
- MaxNumTDMTerminations
- MaxNumRTPTerminations
- MaxNumT38Terminations
- MaxNumHostTerminations
- MaxNumEventsPerTermination
- MaxNumSignalsPerTermination
- MaxNumIPAddressesPerInterface
- MaxNumDigitMaps

***Note:*** All parameters in the Software Constants section are read-only. They cannot be modified in the *pmac.cfg* file.

## SerialNumber

**Description:** The **SerialNumber** parameter contains the unique serial number of the board.

**Values:** A positive integer or hexadecimal value

**Guidelines:** The **SerialNumber** parameter is read-only.

## HardwareVersion

**Description:** The **HardwareVersion** parameter specifies the hardware version of the board.

**Values:** A positive integer or hexadecimal value

**Guidelines:** The **HardwareVersion** parameter is read-only.

## BootROMVersion

**Description:** The **BootROMVersion** parameter indicates the version of the board's boot code.

**Values:** A positive integer or hexadecimal value

**Guidelines:** The **BootROMVersion** parameter is read-only.

## MaxNumDSPs

**Description:** The **MaxNumDSPs** parameter indicates the maximum number of Digital Signal Processors (DSPs) that can be installed on the board.

**Values:** A positive integer or hexadecimal value. The default value is 16.

**Guidelines:** The **MaxNumDSPs** parameter is read-only.

## NumEthernet100BT

**Description:** The **NumEthernet100BT** parameter indicates the number of 100Base-TX Ethernet interfaces on the board.

**Values:** A positive integer or hexadecimal value. The default value is 2.

**Guidelines:** The **NumEthernet100BT** parameter is read-only.

## NumEthernet1000BT

**Description:** The **NumEthernet1000BT** parameter indicates the number of 1000Base-T Ethernet interfaces on the board.

**Values:** A positive integer or hexadecimal value. The default value is 2.

**Guidelines:** The **NumEthernet1000BT** parameter is read-only.

## ManufacturerData

**Description:** The **ManufacturerData** parameter is a 64-byte block of data that is reserved for use by the board manufacturer.

**Values:** Not Available

**Guidelines:** The **ManufacturerData** parameter is read-only.

## IPTBoardSoftwareVersion

**Description:** The **IPTBoardSoftwareVersion** parameter uniquely identifies the version of the software on the board.

**Values:** A positive integer or hexadecimal value

**Guidelines:** The **IPTBoardSoftwareVersion** parameter is read-only.

## DspSoftwareVersion

**Description:** The **DSPSoftwareVersion** parameter uniquely identifies the software version on the board's Digital Signal Processors (DSPs).

**Values:** A positive integer or hexadecimal value

**Guidelines:** The **DSPSoftwareVersion** parameter is read-only.

## MaxNumContexts

**Description:** The **MaxNumContexts** parameter indicates the maximum number of simultaneous contexts supported by the board, not including the NULL context.

**Values:** A positive integer or hexadecimal value. The default value is 480.

**Guidelines:** The **MaxNumContexts** parameter is read-only.

## MaxNumTerminationsPerContexts

**Description:** The **MaxNumTerminationsPerContexts** parameter defines the maximum number of simultaneous terminations contained in a context. That is, the total number of terminations that can be added to any one context (excluding the NULL context).

**Values:** A positive integer or hexadecimal value. The default value is 2.

**Guidelines:** The **MaxNumTerminationsPerContexts** parameter is read-only.

## MaxNumTDMTerminations

**Description:** The **MaxNumTDMTerminations** parameter specifies the number of simultaneous Time Division Multiplexing (TDM) terminations allowed on the board.

**Values:** A positive integer or hexadecimal value. The default value is 480.

**Guidelines:** The **MaxNumTDMTerminations** parameter is read-only.

## MaxNumRTPTerminations

**Description:** The **MaxNumRTPTerminations** parameter indicates the number of simultaneous Real-time Transport Protocol (RTP) terminations allowed on the board.

**Values:** A positive integer or hexadecimal value. The default value is 480.

**Guidelines:** The **MaxNumRTPTerminations** parameter is read-only.

## MaxNumT38Terminations

**Description:** The **MaxNumT38Terminations** parameter specifies the number of simultaneous T.38 FoIP terminations allowed on the board.

**Values:** A positive integer or hexadecimal value. The default value is 480.

**Guidelines:** The **MaxNumT38Terminations** parameter is read-only.

## MaxNumHostTerminations

**Description:** The **MaxNumHostTerminations** parameter denotes the number of simultaneous Host terminations allowed on the board.

**Values:** A positive integer or hexadecimal value. The default value is 480.

**Guidelines:** The **MaxNumHostTerminations** parameter is read-only.

### MaxNumEventsPerTermination

**Description:** The **MaxNumEventsPerTermination** parameter defines the number of simultaneous events (DTMF digit detection, Fax tone detection etc.) allowed per termination.

**Values:** A positive integer or hexadecimal value. The default value is 5.

**Guidelines:** The **MaxNumEventsPerTermination** parameter is read-only.

### MaxNumSignalsPerTermination

**Description:** The **MaxNumSignalsPerTermination** parameter indicates the number of simultaneous tones (Ringback, Call Waiting etc.) allowed per termination.

**Values:** A positive integer or hexadecimal value. The default value is 1.

**Guidelines:** The **MaxNumSignalsPerTermination** parameter is read-only.

### MaxNumIPAddressesPerInterface

**Description:** The **MaxNumIPAddressesPerInterface** parameter defines how many unique IP addresses for sourcing voice packets to the IP Network are supported by each Ethernet interface on the board.

**Values:** A positive integer or hexadecimal value. The default value is 4.

**Guidelines:** The **MaxNumIPAddressesPerInterface** parameter is read-only.

### MaxNumDigitMaps

**Description:** The **MaxNumDigitMaps** parameter indicates the maximum number of digit maps allowed on the board. A digit map is a dialing plan that is used for detecting and reporting digit events that are received on a termination. Any termination type (TDM, RTP, T38 or Host) capable of detecting DTMF digits is allowed to detect digit strings using digit maps.

**Values:** A positive integer or hexadecimal value. The default value is 5.

**Guidelines:** The **MaxNumDigitMaps** parameter is read-only.

## 4.3 TDM Bus Configuration

The TDM Bus Configuration section of the *pmac.cfg* file contains parameters that indicate the board's TDM bus settings. The TDM Bus Configuration section contains the following parameters:

- ClockMode
- ClockSource
- ClockFrequency
- ClockFallback

***Note:*** All parameters in the TDM Bus Configuration section are read-only. They cannot be modified in the *pmac.cfg* file.

## ClockMode

**Description:** The **ClockMode** parameter specifies whether the board is a Primary/Secondary clock master for one of the CT Bus lines or a TDM bus slave. For the current system release, it is always set to Slave.

**Values:**

- Slave [default]: board derives its clocking from either the CT Bus A line or CT Bus B line
- Master_A: board drives clocking on the CT Bus A line
- Master_B: board drives clocking on the CT Bus B line

**Guidelines:** The **ClockMode** parameter is read-only.

## ClockSource

**Description:** The **ClockSource** parameter specifies where the board will get its clocking signal.

**Values:**

- Clk_LeadA [default]: board gets clocking signal from CT Bus Line A
- Clk_LeadB: board gets clocking signal from CT Bus Line B
- NetRef_1: board gets clocking from the CT Bus Netref 1 line
- NetRef_2: board gets clocking from the CT Bus NetRef 2 line
- Internal_Oscillator: board gets clocking signal from its internal clock

**Guidelines:** The **ClockSource** parameter is read-only.

## ClockFrequency

**Description:** The **ClockFrequency** parameter specifies the frequency of the board's clocking source.

**Values:**

- 8KHz [default]
- 1.536MHz
- 1.544MHz
- 2.048MHz

**Guidelines:** The **ClockFrequency** parameter is read-only.

### ClockFallback

**Description:** The **ClockFallback** parameter indicates the fallback source for clocking if the board is a CT bus master.

**Values:**

- Fallback_Disabled [default]: board's clock fallback feature is disabled
- Internal_Oscillator: board's clock fallback is its internal oscillator
- Clk_LeadA: board's clock fallback is the signal on the CT Bus Line A
- Clk_LeadB: board's clock fallback is the signal on the CT Bus Line B
- NetRef_1: board's clock fallback is the signal on the CT Bus Netref 1 line
- NetRef_2: board's clock fallback is the signal on the CT Bus NetRef 2 line
- Holdover: board's clock fallback is Holdover mode

**Guidelines:** The **ClockFallback** parameter is read-only.

## 4.4 Call Defaults Configuration

The Call Defaults Configuration section of the *pmac.cfg* file contains parameters that allow you to customize the call handling properties of the board. The following parameters are included in the Call Defaults Configuration section:

- StartContextID
- StartTerminationID
- BriefSignalTime
- DigitMapStartTimer
- DigitMapShortTimer
- DigitMapLongTimer
- DefaultLostPacketAlarmThreshold
- DefaultLostPacketPercentAlarmThreshold
- DefaultJitterBufferLength
- DefaultInterarrivalJitterAlarmThreshold
- DefaultRTPPacketLatencyAlarmThreshold
- DefaultEchoTailLength
- DefaultEchoReturnLoss
- DefaultTDMTransmitAttenuation
- DefaultVoiceActivityDetection
- DefaultVoiceFramesPerPacket
- DefaultTimeslotEncoding
- DefaultRemoteCodec

- DefaultLocalCodec

*Note:* The Context-Termination associations supported by Intel® NetStructure IPT Series boards are modelled after the concepts outlined in the Megaco (ITU H.248) standard.

## StartContextID

**Description:** The **StartContextID** parameter defines the lowest number Context ID, which the board can assign or be assigned by a host.

The Context ID is a 16-bit value that uniquely identifies a context for call control purposes. Context IDs are assigned from a contiguous block of numbers starting with the **StartContextID**.

**Values:** A positive integer or hexadecimal value. The default value is 1.

*Note:* 0 is an invalid value because it is reserved for the NULL context.

**Guidelines:** The **StartContextID** parameter is read/write, although it is recommended that you leave this parameter at its default value.

## StartTerminationID

**Description:** The **StartTerminationID** parameter indicates the lowest number Termination ID, which the board can assign or be assigned by a host.

The Termination ID is a 16-bit value that uniquely identifies a termination. Termination IDs are assigned from a contiguous block of numbers starting with the **StartTerminationID**.

**Values:** A positive integer or hexadecimal value. The default value is 1.

**Guidelines:** The **StartTerminationID** parameter is read/write, although it is recommended that you leave this parameter at its default value.

## BriefSignalTime

**Description:** The **BriefSignalTime** parameter specifies the time duration that any signal will be played on a termination.The value must be set in milliseconds.

**Values:** A positive integer or hexadecimal value. The default value is 0.

**Guidelines:** The **BriefSignalTime** parameter is read/write.

## DigitMapStartTimer

**Description:** The **DigitMapStartTimer** parameter defines the timeout used when waiting for the first digit of a dial string. A digit map is a dialing plan that is used for detecting and reporting digit events that are received on a termination. The value must be set in milliseconds.

**Values:** A positive integer or hexadecimal value.The default value is 1000.

**Guidelines:** The **DigitMapStartTimer** parameter is read/write.

## DigitMapShortTimer

**Description:** The **DigitMapShortTimer** parameter sets the interdigit timeout when a match is found within a dial string, but there is still the possibility of receiving more digits that could give

a match on a different dial string. A digit map is a dialing plan that is used for detecting and reporting digit events that are received on a termination. The value must be set in milliseconds.

**Values:** A positive integer or hexadecimal value. The default value is 6000.

**Guidelines:** The **DigitMapShortTimer** is read/write.

## DigitMapLongTimer

**Description:** The **DigitMapLongTimer** parameter sets the interdigit timeout when there is at least one more digit to match in a dial string. A digit map is a dialing plan that is used for detecting and reporting digit events that are received on a termination. The value must be set in milliseconds.

**Values:** Any positive integer or hexadecimal value. The default value is 16000.

**Guidelines:** The **DigitMapLongTimer** parameter is read/write.

## DefaultLostPacketAlarmThreshold

**Description:** For packet terminations, a value of lost packets that is greater than the **DefaultLostPacketAlarmThreshold** parameter causes an Excessive Lost Packet event to be generated.

**Values:** A positive integer or hexadecimal value. The default value is 100.

***Note:*** A value of 0 indicates that no threshold is monitored and therefore no alarm event is reported.

**Guidelines:** The **DefaultLostPacketAlarmThreshold** parameter is read/write. This value is used for all RTP terminations on the board.

## DefaultLostPacketPercentAlarmThreshold

**Description:** For packet type terminations, a percentage of lost packets greater than the **DefaultLostPacketPercentAlarmThreshold** value causes an Excessive Lost Packet Percent event to be generated.

**Values:** 0 to100 (0 to 100%) The default value is 10.

***Note:*** A value of 0 means no threshold is monitored and therefore no alarm will be reported.

**Guidelines:** The **DefaultLostPacketAlarmPercentThreshold** parameter is read/write. This value is used for all RTP terminations on the board.

## DefaultJitterBufferLength

**Description:** The **DefaultJitterBufferLength** parameter sets the default length of packet jitter buffers for all packet termination types on the board.The value must be set in milliseconds.

**Values:** A positive integer or hexadecimal value. The default value is 3.

***Note:*** The jitter buffer is initially filled to one half of this value.

**Guidelines:** The **DefaultJitterBufferLength** parameter is read/write. This value is used for all RTP terminations on the board.

## DefaultInterarrivalJitterAlarmThreshold

**Description:** If jitter exceeds the **DefaultInterarrivalJitterAlarmThreshold** parameter value, an Excessive Interarrival Jitter event is generated. The value must be set in milliseconds.

**Values:** A positive integer or hexadecimal value. The default value is 30.

**Guidelines:** The **DefaultInterarrivalJitterAlarmThreshold** parameter is read/write. This parameter sets the threshold for all packet termination types on the board.

## DefaultRTPPacketLatencyAlarmThreshold

**Description:** If RTP packet latency exceeds the **DefaultRTPPacketLatencyAlarmThreshold** value, an RTP Packet Latency event is generated. The value must be set in milliseconds.

**Values:** A positive integer or hexadecimal value. The default value is 950.

***Note:*** A value of 0 means no threshold is monitored and therefore no alarm will be generated.

**Guidelines:** The **DefaultRTPPacketLatencyAlarmThreshold** parameter is read/write. The value is used for all RTP terminations on the board.

## DefaultEchoTailLength

**Description:** The **DefaultEchoTailLength** parameter specifies the echo cancellation tail length.

**Values:**

- No_Echo_Cancellation [default]
- 8ms
- 16ms
- 32ms
- 64ms
- 96ms
- 128ms

**Guidelines:** The **DefaultEchoTailLength** parameter is read/write. This value is used for all TDM terminations on the board.

## DefaultEchoReturnLoss

**Description:** The **DefaultEchoReturnLoss** parameter is a board level property of the echo cancellation return loss for all terminations using echo cancellation.

**Values:**

- minus6db [default]
- minus3db
- 0db

**Guidelines:** The **DefaultEchoReturnLoss** parameter is read/write. This value is the default for all terminations that use echo cancellation.

## DefaultTDMTransmitAttenuation

**Description:** The **DefaultTDMTransmitAttenuation** parameter sets the attenuation (gain), in decibels, for TDM terminations applied to samples transmitted to the TDM bus.

**Values:**

- ALC_Disabled [default]
- minus5dB
- minus10dB
- minus15dB
- minus20dB
- minus25dB
- minus30dB
- minus35dB

**Guidelines:** The **DefaultTDMTransmitAttenuation** parameter is read/write. This value is the default used by all TDM terminations on the board.

## DefaultVoiceActivityDetection

**Description:** The **DefaultVoiceActivityDetection** parameter controls the Voice Activity Detection (VAD) and the encoding of silence suppression packets.

**Values:**

- Disabled [default]: the VAD is disabled
- Enabled_but_no_Silence_Frame: VAD is disabled and silence suppression is not used
- Default_Silence_Suppression: VAD is enabled and silence suppressions is set to default value
- VxTel_VAD: VxTel VAD is enabled

**Guidelines:** The **DefaultVoiceActivityDetection** parameter is read/write. This value is the default used by all TDM terminations on the board.

## DefaultVoiceFramesPerPacket

**Description:** The **DefaultVoiceFramesPerPacket** parameter determines the number of voice encoded frames combined into a single packet.

**Values:** Any positive integer or hexadecimal value. The default value is 1.

**Guidelines:** The **DefaultVoiceActivityDetection** parameter is read/write. This value is the default used by all TDM terminations on the board.

## DefaultTimeslotEncoding

**Description:** The **DefaultTimeslotEncoding** parameter indicates the encoding of the TDM timeslot for TDM type terminations.

**Values:**

- ULAW [default]: Mu-law PCM coding and companding standard is used
- ALAW: A-Law PCM coding and companding standard is used
- PCM: Pulse code modulation is used without companding
- NoConversion: No encoding is used

**Guidelines:** The **DefaultTimeslotEncoding** parameter is read/write. This value is the default used by all TDM terminations on the board.

## DefaultRemoteCodec

**Description:** The **DefaultRemoteCodec** parameter determines which codec is applied to media that is sent to the network by the board.

**Values:**

- G.711_MuLaw_10ms_64kbps [default]
- G.711_Alaw_5ms_64kbps
- G.711_Alaw_10ms_64kbps
- G.711_Alaw_20ms_64kbps
- G.711_Alaw_30ms_64kbps
- G.711_Mulaw_5ms_64kbps
- G.711_Mulaw_20ms_64kbps
- G.711_Mulaw_30ms_64kbps
- G.723.1_40ms_5.3kbps
- G.723.1_30ms_6.3kbps
- G.726_10ms_32kbps
- G.726_20ms_32kbps
- G.726_40ms_32kbps
- G.726_60ms_32kbps
- G.729A_10ms_8kbps
- NONE

**Guidelines:** The **DefaultRemoteCodec** parameter is read/write.

### DefaultLocalCodec

**Description:** The **DefaultLocalCodec** parameter determines which codec is applied to media that is received from the network by the board.

**Values:**

- G.711_MuLaw_10ms_64kbps [default]
- G.711_Alaw_5ms_64kbps
- G.711_Alaw_10ms_64kbps
- G.711_Alaw_20ms_64kbps
- G.711_Alaw_30ms_64kbps
- G.711_Mulaw_5ms_64kbps
- G.711_Mulaw_20ms_64kbps
- G.711_Mulaw_30ms_64kbps
- G.723.1_40ms_5.3kbps
- G.723.1_30ms_6.3kbps
- G.726_10ms_32kbps
- G.726_20ms_32kbps
- G.726_40ms_32kbps
- G.726_60ms_32kbps
- G.729A_10ms_8kbps
- NONE

**Guidelines:** The **DefaultRemoteCodec** parameter is read/write.

## 4.5 General IP Configuration

The General IP Configuration section of the *pmac.cfg* file contains the following parameters:



### IPVersion

**Description:** The **IPVersion** parameter determines the IP version supported by the board's Ethernet interfaces. The IPVersion is used to formulate the IP header format.

**Values:**

- IPv4 [default]
- IPv6

**Guidelines:** The **IPVersion** parameter is read-only.

### EnetPortsActive

**Description:** The **EnetPortsActive** parameter allows you to determine which pair of Ethernet ports are active. The Intel® NetStructure IPT Series board provides a pair of 100Base-TX

Ethernet ports and a pair of 1000Base-T Ethernet ports. You can activate either the 100Base-TX set of ports or the 1000Base-T set of ports.

**Values:**

- 100BT [default]: the pair of 100Base-TX ports is active
- 1000BT : the pair of 1000Base-T ports is active

**Guidelines:** The **EnetPortsActive** parameter is read/write.

## 4.6 100Base-TX/1000Base-T Configuration

The parameters described in this section allow you to configure the Ethernet ports on your board. Since the parameters in the 100Base-TX configuration section and the 1000Base-T configuration section of the *pmac.cfg* file are the same except for the prefix 100BT or 1000BT), the parameter descriptions have been consolidated into this section as follows:

- <100BT | 1000BT>_MACAddressPort0
- <100BT | 1000BT>_MACAddressPort1
- <100BT | 1000BT>_DHCPModePort0
- <100BT | 1000BT>_DHCPModePort1
- <100BT | 1000BT>_Mode
- <100BT | 1000BT>_PrimaryPort
- <100BT | 1000BT>_Failover
- <100BT | 1000BT>_Port<x>IPEntity<z>IPv4Address
- <100BT | 1000BT>_Port<x>IPEntity<z>UDPPortStart
- <100BT | 1000BT>_Port<x>IPEntity<z>NumUDPPortsPerIPAddress
- <100BT | 1000BT>_Port<x>IPEntity<z>UDPUseChecksum
- <100BT | 1000BT>_Port<x>IPEntity<z>DefaultTypeOfService
- <100BT | 1000BT>_Port<x>IPEntity<z>DefaultTimeToLive
- <100BT | 1000BT>_Port<x>IPEntity<z>IPv4NetMask
- <100BT | 1000BT>_Port<x>IPEntity<z>IPv4GatewayAddress

### <100BT | 1000BT>_MACAddressPort0

**Description:** The **MACAddressPort0** parameter denotes the Media Access Control address for Port 0.

**Values:** A six byte array

**Guidelines:** The **MACAddressPort0** parameter is read-only.

## <100BT | 1000BT>_MACAddressPort1

**Description:** The **MACAddressPort1** parameter denotes the Media Access Control address for Port 1.

**Values:** A six byte array

**Guidelines:** The **MACAddressPort1** parameter is read-only.

## <100BT | 1000BT>_DHCPModePort0

**Description:** The **DHCPModePort0** parameter determines whether or not Dynamic Host Configuration Protocol is enabled for Port 0.

**Values:**

- Disable[default]
- Enable

*Note:* If DHCP is enabled on an Ethernet port, the board will only support one IP address on that port.

**Guidelines:** The **DHCPModePort0** parameter is read-only.

## <100BT | 1000BT>_DHCPModePort1

**Description:** The **DHCPModePort1** parameter determines whether or not Dynamic Host Configuration Protocol is enabled for Port 1.

**Values:**

- Disable[default]
- Enable

*Note:* If DHCP is enabled on an Ethernet port, the board will only support one IP address on that port.

**Guidelines:** The **DHCPModePort1** parameter is read-only.

## <100BT | 1000BT>_Mode

**Description:** The **Mode** parameter defines the load sharing strategy for the board when assigning RTP sessions to Ethernet ports.

**Values:**

- Fallback [default]: One Ethernet port functions as a primary while the other serves as a backup. If the primary port fails, network traffic is immediately routed to the backup port.
- LoadSharing: The pair of Ethernet ports share network traffic.
- Off: Ethernet interface pair is currently not active.

**Guidelines:** The **Mode** parameter is read/write but must be set to Fallback for the current System Release.

## <100BT | 1000BT>_PrimaryPort

**Description:** The **PrimaryPort** parameter determines which Ethernet port serves as the primary port. When the **Mode** parameter is set to Fallback, the primary port receives all network traffic while the other port is designated as a backup.

**Values:**

- Port0 [default]: Port 0 is the primary port and Port 1 is the backup.
- Port1: Port1 is the primary port and Port 0 is the backup.
- Not_Valid_In_LoadSharing: The Ethernet interfaces are configured for load sharing, so the network traffic is evenly distributed between the two ports. Primary/secondary port assignment does not apply.
- Not_Valid_When_Ports_Are_Off: The Ethernet interface pair is not active.

**Guidelines:** The **Primary** parameter is read/write.

## <100BT | 1000BT>_Failover

**Description:** The **Failover** parameter defines the behavior of packet traffic on Ethernet ports in the event of an Ethernet port failure. If **Failover** is active and the **Mode** parameter is set to LoadSharing, then all network traffic is re-routed from the failed port to the port that is still active. If **Failover** is active and **Mode** is set to Fallback, network traffic is moved from the **PrimaryPort** to the backup port. If **Failover** is not active and a port fails, call traffic is not moved.

**Values:**

- No_Failover [default]
- Failover

**Guidelines:** The **Failover** parameter is read/write but this parameter must be set to No_Failover. Failover is not supported in the current system release.

## <100BT | 1000BT>_Port<x>IPEntity<z>IPv4Address

**Description:** The **IPv4Address** parameter defines the IP address for RTP terminations.

**Values:** A valid IP address. The default value is 10.0.10.0.

***Note:*** A value of 255.255.255.255 makes the IP port inactive

**Guidelines:** The **IPv4Address** parameter is read/write.

## <100BT | 1000BT>_Port<x>IPEntity<z>UDPPortStart

**Description:** The **UDPPortStart** parameter sets the initial User Datagram Protocol (UDP) port number for an IP address to support RTP packets.

**Values:** A positive integer or hexadecimal value. The default value is 0.

***Note:*** The lower order 11 bits of the value must be set to 0.

**Guidelines:** The **UDPPortStart** parameter is read/write.

### <100BT | 1000BT>_Port<x>IPEntity<z>NumUDPPortsPerIPAddress

**Description:** The **NumUDPPortsPerIPAddress** parameter defines the number of UDP ports allowed on an IP address for both RTP and RTCP packets.

**Values:** A positive integer or hexadecimal value. The default value is 1346.

**Guidelines:** The **NumUDPPortsPerIPAddress** parameter is read/write.

### <100BT | 1000BT>_Port<x>IPEntity<z>UDPUseChecksum

**Description:** The **UDPUseChecksum** parameter denotes the calculated UDP checksum. A checksum is a count of the number of bits in a packet that is included with the packet so that the receiving end can check to see whether the same number of bits arrived. If the counts are identical, the complete transmission was received.

**Values:**

- Set_Checksum_To_Zero [default]
- Transmit_UDP_checksums

**Guidelines:** The **UDPUseChecksum** parameter is read/write.

### <100BT | 1000BT>_Port<x>IPEntity<z>DefaultTypeOfService

**Description:** The **DefaultTypeOfService** parameter indicates the default value that will be used in the Type of Service (TOS) field of all transmitted IP packet headers. The TOS field specifies transmission precedence for the packet.

**Values:** A positive integer from 0 to 255. The default value is 0 (normal precedence).

**Guidelines:** The **DefaultTypeOfService** parameter is read/write.

### <100BT | 1000BT>_Port<x>IPEntity<z>DefaultTimeToLive

**Description:** The **DefaultTimeToLive** parameter sets the default value that will be used in the Time To Live (TTL) field of all transmitted IP packet headers. The value determines the number of routers through which the packet can pass.

**Values:** A positive integer or hexadecimal value. The default value is 64.

**Guidelines:** The **DefaultTimeToLive** parameter is read/write.

### <100BT | 1000BT>_Port<x>IPEntity<z>IPv4NetMask

**Description:** The **IPvNetMask** parameter denotes the network mask for the classes of IPv4 addresses.

**Values:** A valid NetMask address. The default value is 255.255.255.0 (Class C).

**Guidelines:** The **IPv4NetMask** parameter is read/write.

### <100BT | 1000BT>_Port<x>IPEntity<z>IPv4GatewayAddress

**Description:** The **IPv4GatewayAddress** sets the IPv4 gateway address (packet router address).

**Values:** A valid IP address. The default value is 10.0.10.0.

**Guidelines:** The **IPv4GatewayAddress** parameter is read/write.

## 4.7 Call Progress Tones Configuration

The Call Progress Tones Configuration section of the *pmac.cfg* file contains parameters that allow you to explicitly set the characteristics of certain call progress tones that are generated by the board. The Call Progress Tones Configuration section contains the following parameters:

- CallProgressTones
- DialtoneFreqLow
- DialtoneFreqHigh
- RingingOnTime_in_5ms_units
- RingingOffTime_in_5ms_units
- RingingFreqLow
- RingingFreqHigh
- BusyOnTime_in_5ms_units
- BusyOffTime_in_5ms_units
- BusyFreqLow
- BusyFreqHigh
- CongestOnTime_in_5ms_units
- CongestOffTime_in_5ms_units
- CongestFreqLow
- CongestFreqHigh
- DefaultDTMFPulseTime
- DefaultDTMFGuardTime
- DefaultDTMFInterdigitTime
- DefaultDTMFVolume

## CallProgressTones

**Description:** The CallProgressTones parameters allows you to automatically set the values of all parameters in the Call Progress Tones Configuration section of the *pmac.cfg* file.

**Values:**

- US [default]: sets all other parameters in the Call Progress Tones Configuration section to values that are consistent with the standard application of audible tones for end users in the United States.
- ITU_T_E.180: sets all parameters in the Call Progress Tones Configuration section to the values that are consistent with the International Telecommunication Union Telecommunications Standardization Section (ITU_U) E.180 Recommendation for the application of audible tones for end users.
- User_Defined: allows the user to customize each parameter in the Call Progress Tones Configuration section of the *pmac.cfg* file.

**Guidelines:** The **CallProgressTones** parameter is read/write. If you set the value to US or ITU_T_E1.80, then you cannot configure any other parameters in the Call Progress Tones Configuration section of the *pmac.cfg* file (the system sets the appropriate values). The User_Defined setting allows you to individually set each parameter in the Call Progress Tones Configuration section.

## DialtoneFreqLow

**Description:** The **DialtoneFreqLow** parameter sets the low frequency component of the dial tone that is generate by the board.

**Values:** The **DialtoneFreqLow** parameter can be set to any one of the values:

| | | | | |
|---|---|---|---|---|
| 250Hz | 600Hz | 950Hz | 1477Hz | 2040Hz |
| 300Hz | 620Hz | 1000Hz | 1500Hz | 2060Hz |
| 350Hz [default] | 660Hz | 1004Hz | 1620Hz | 2100Hz |
| 380Hz | 697Hz | 1020Hz | 1633Hz | 2130Hz |
| 400Hz | 700Hz | 1100Hz | 1700Hz | 2225Hz |
| 420Hz | 750Hz | 1140Hz | 1740Hz | 2280Hz |
| 425Hz | 770Hz | 1209Hz | 1780Hz | 2400Hz |
| 440Hz | 780Hz | 1300Hz | 1800Hz | 2450Hz |
| 450Hz | 852Hz | 1336Hz | 1860Hz | 2600Hz |
| 480Hz | 900Hz | 1380Hz | 1980Hz | 2750Hz |
| 540Hz | 941Hz | 1400Hz | 2010Hz | 3825Hz |

**Guidelines:** The **DialtoneFreqLow** parameter is read/write.

## DialtoneFreqHigh

**Description:** The **DialtoneFreqHigh** parameter sets the high frequency component of the dial tone that is generated by the board.

**Values:** For a list of valid settings, refer to the table in the Values section of "DialtoneFreqLow", on page 61. The default value is 440Hz.

**Guidelines:** The **DialtoneFreqHigh** parameter is read/write.

## RingingOnTime_in_5ms_units

**Description:** The **RingingOnTime_in_5ms_units** parameter specifies the on time value (in 5 millisecond units) for the ringing tone that is generated by the board.

**Values:** A positive integer or hexadecimal value. The default value is 400 (2000ms).

**Guidelines:** The **RingingOnTime_in_5ms_units** parameter is read/write.

## RingingOffTime_in_5ms_units

**Description:** The **RingingOffTime_in_5ms_units** parameter specifies the off time value (in 5 millisecond units) for the ringing tone that is generated by the board.

**Values:** A positive integer or hexadecimal value. The default value is 800 (4000ms).

**Guidelines:** The **RingingOffTime_in_5ms_units** parameter is read/write.

## RingingFreqLow

**Description:** The **RingingFreqLow** parameter sets the low frequency component of the ringing tone that is generated by the board.

**Values:** For a list of valid settings, refer to the table in the Values section of "DialtoneFreqLow", on page 61. The default value is 440Hz.

**Guidelines:** The **RingingFreqLow** parameter is read/write.

## RingingFreqHigh

**Description:** The **RingingFreqHigh** parameter indicates the high frequency component of the ringing tone that is generated by the board.

**Values:** For a list of valid settings, refer to the table in the Values section of "DialtoneFreqLow", on page 61. The default value is 480Hz.

**Guidelines:** The **RingingFreqHigh** parameter is read/write.

## BusyOnTime_in_5ms_units

**Description:** The **BusyOnTime_in_5ms_units** parameter sets the on time value (in 5 millisecond units) for the busy tone that is generated by the board.

**Values:** A positive integer or hexadecimal value. The default value is 100 (500ms).

**Guidelines:** The **BusyOnTime_in_5ms_units** parameter is read/write.

## BusyOffTime_in_5ms_units

**Description:** The **BusyOffTime_in_5ms_units** parameter sets the off time value (in 5 millisecond units) for a busy tone that is generated by the board.

**Values:** A positive integer or hexadecimal value. The default value is 100 (500ms).

**Guidelines:** The **BusyOffTime_in_5ms_units** parameter is read/write.

## BusyFreqLow

**Description:** The **BusyFreqLow** parameter indicates the low frequency component of the busy tone that is generated by the board.

**Values:** For a list of valid settings, refer to the table in the Values section of "DialtoneFreqLow", on page 61. The default value is 480Hz.

**Guidelines:** The **BusyFreqLow** parameter is read/write.

## BusyFreqHigh

**Description:** The **BusyFreqHigh** parameter sets the high frequency component of the busy tone that is generated by the board.

**Values:** For a list of valid settings, refer to the table in the Values section of "DialtoneFreqLow", on page 61. The default value is 620Hz.

**Guidelines:** The **BusyFreqHigh** parameter is read/write.

## CongestOnTime_in_5ms_units

**Description:** The **CongestOnTime_in_5ms_units** parameter sets the on time value (in 5 millisecond units) for the network congestion tone that is generated by the board.

**Values:** A positive integer or hexadecimal value. The default value is 50 (250ms).

**Guidelines:** The **CongestOnTime_in_5ms_units** parameter is read/write.

## CongestOffTime_in_5ms_units

**Description:** The **CongestOffTime_in_5ms_units** parameter sets the off time value (in 5 millisecond units) for the network congestion tone that is generated by the board.

**Values:** A positive integer or hexadecimal value. The default value is 50 (250ms).

**Guidelines:** The **CongestOffTime_in_5ms_units** parameter is read/write.

## CongestFreqLow

**Description:** The **CongestFreqLow** parameter indicates the low frequency component of the network congestion tone that is generated by the board.

**Values:** For a list of valid settings, refer to the table in the Values section of "DialtoneFreqLow", on page 61. The default value is 480Hz.

**Guidelines:** The **CongestFreqLow** parameter is read/write.

### CongestFreqHigh

**Description:** The **CongestFreqHigh** parameter sets the high frequency component of the network congestion tone that is generated by the board.

**Values:** For a list of valid settings, refer to the table in the Values section of "DialtoneFreqLow", on page 61. The default value is 620Hz.

**Guidelines:** The **CongestFreqHigh** parameter is read/write.

### DefaultDTMFPulseTime

**Description:** The **DefaultDTMFPulseTime** parameter defines the on time (in 5 millisecond units) for a DTMF pulse that is generated by the board.

**Values:** A positive integer or hexadecimal value. The default value is 20 (100ms).

**Guidelines:** The **DefaultDTMFPulseTime** parameter is read/write.

### DefaultDTMFGuardTime

**Description:** The **DefaultDTMFGuardTime** parameter defines the silence time (in 5 millisecond units) preceding the first DTMF digit and following the last DTMF digit.

**Values:** A positive integer or hexadecimal value. The default value is 4 (20ms).

**Guidelines:** The **DefaultDTMFGuardTime** parameter is read/write.

### DefaultDTMFInterdigitTime

**Description:** The **DefaultDTMFInterdigitTime** parameter defines the time (in 5 millisecond units) between digits in a dialed string.

**Values:** A positive integer or hexadecimal value. The default value is 4 (20ms).

**Guidelines:** The **DefaultDTMFInterdigitTime** parameter is read/write.

### DefaultDTMFVolume

**Description:** The **DefaultDTMFVolume** parameter sets the volume at which DTMF tones are generated.

**Values:** A positive integer or hexadecimal value. The default value is 10.

**Guidelines:** The **DefaultDTMFVolume** parameter is read/write.

## 4.8 T.38 Fax Over IP (FoIP) Configuration

The T.38 Fax over IP (FoIP) configuration section of the *pmac.cfg* file contains configuration information about the fax over IP settings. The following parameters are included in the T.38 FoIP configuration section:

- DefaultT38FaxVersion

- DefaultT38MaxBitRate
- DefaultT38FaxFillBitRemoval
- DefaultT38FaxTranscodingMmr
- DefaultT38FaxTranscodingJbig
- DefaultT38FaxRateManagement
- DefaultT38FaxMaxBuffer
- DefaultT38FaxMaxDatagram
- DefaultT38FaxUdpEc
- DefaultT38FaxProtocol
- DefaultOverrideFaxModulation
- DefaultOverrideFaxDataFormat
- DefaultOverrideEcmNegotiatedFaxMode
- DefaultSupportEllipsisCorrigendum
- DefaultTransmitHoldbackThreshold
- DefaultHighSpeedFrameRate
- DefaultTcfPercentageErrorLimit
- DefaultRedundancyLevelV21Indicators
- DefaultRedundancyLevelV21Data
- DefaultRedundancyLevelHighSpeedEcm
- DefaultRedundancyLevelHighSpeedNonEcm
- DefaultRedundancyLevelHighSpeedEof
- DefaultRedundancyLevelHighSpeedEot
- DefaultDynamicVariableRedundancy

***Note:*** All parameters in the T.38 FoIP configuration section of the *pmac.cfg* file are read only.

## DefaultT38FaxVersion

**Description:** The **DefaultT38FaxVersion** parameter indicates which fax version is supported by the board.

**Values:** A positive integer or hexadecimal value

**Guidelines:** The **DefaultT38FaxVersion** parameter is read-only.

## DefaultT38MaxBitRate

**Description:** The **DefaulT38MaxBitRate** parameter indicates the maximum bit rate at which faxes can be sent/received by the board.

**Values:** A positive integer or hexadecimal value. The default value is 14400.

**Guidelines:** The **DefaulT38MaxBitRate** parameter is read-only.

## DefaultT38FaxFillBitRemoval

**Description:** The **DefaultT38FaxFillBitRemoval** parameter indicates whether or not fax fill bit removal is enabled on the board.

**Values:**

- Disable [default]
- Enable

**Guidelines:** The **DefaultT38FaxFillBitRemoval** parameter is read-only.

## DefaultT38FaxTranscodingMmr

**Description:** The **DefaultT38FaxTranscodingMmr** parameter determines whether or not transcoding memory is active on the board.

**Values:**

- Disable [default]
- Enable

**Guidelines:** The **DefaultT38FaxTranscodingMmr** parameter is read-only.

## DefaultT38FaxTranscodingJbig

**Description:** The **DefaultT38FaxTranscodingJbig** parameter determines if joint bi-level imaging is enabled on the board.

**Values:**

- Disable [default]
- Enable

**Guidelines:** The **DefaultT38FaxTranscodingJbig** parameter is read-only.

## DefaultT38FaxRateManagement

**Description:** The **DefaultT38FaxRateManagement** parameter indicates the how the fax rate is managed on the board.

**Values:**

- TransferredTCF [default]
- LocalTCB

**Guidelines:** The **DefaultT38FaxRateManagement** parameter is read-only.

## DefaultT38FaxMaxBuffer

**Description:** The **DefaultT38FaxMaxBuffer** parameter determines the maximum size of the fax buffer used by the board.

**Values:** A positive integer or hexadecimal value. The default value is 72.

**Guidelines:** The **DefaultT38FaxMaxBuffer** parameter is read-only.

## DefaultT38FaxMaxDatagram

**Description:** The **DefaultT38FaxMaxDatagram** parameter determines the maximum size of fax datagrams.

**Values:** A positive integer or hexadecimal value. The default value is 316.

**Guidelines:** The **DefaultT38FaxMaxDatagram** parameter is read-only.

## DefaultT38FaxUdpEc

**Description:** The **DefaultT38FaxUdpEc** parameter determines the User Datagram Protocol transmission mode of datagrams.

**Values:**

- T38UDPRedundancy [default]
- T38UDPFEC

**Guidelines:** The **DefaultT38FaxUdpEc** parameter is read-only.

## DefaultT38FaxProtocol

**Description:** The **DefaultT38FaxProtocol** parameter indicates the protocol used by the board's FoIP feature.

**Values:**

- UDPTL [default]
- TKPT

**Guidelines:** The **DefaultT38FaxProtocol** parameter is read-only.

## DefaultOverrideFaxModulation

**Description:** The **DefaultOverrideFaxModulation** parameter determines when the fax modulation should be overwritten by the board.

**Values:**

- NoOverride [default]
- V27Only
- V29Best

**Guidelines:** The **DefaultOverrideFaxModulation** parameter is read-only.

## DefaultOverrideFaxDataFormat

**Description:** The **DefaultOverrideFaxDataFormat** parameter determines which data formats should be overridden by the board.

**Values:**

- NoOverride [default]
- MHOnly

- MRBest

**Guidelines:** The **DefaultOverrideFaxDataFormat** parameter is read-only.

## DefaultOverrideEcmNegotiatedFaxMode

**Description:** The **DefaultOverrideEcmNegotiatedFaxMode** parameter indicates whether or not ECM should be overridden by the board.

**Values:**

- NoOverride [default]
- InhibitECM

**Guidelines:** The **DefaultOverrideEcmNegotiatedFaxMode** parameter is read only.

## DefaultSupportEllipsisCorrigendum

**Description:** The **DefaultSupportEllipsisCorrigendum** parameter indicates whether or not ellipsis corrigendum support is enabled.

**Values:**

- Disable [default]
- Enable

**Guidelines:** The **DefaultSupportEllipsisCorrigendum** parameter is read-only.

## DefaultTransmitHoldbackThreshold

**Description:** The **DefaultTransmitHoldbackThreshold** parameter determines the threshold at which the board places a hold on transmitting faxes.

**Values:** A positive integer or hexadecimal value. The default value is 9.

**Guidelines:** The **DefaultTransmitHoldbackThreshold** parameter is read-only.

## DefaultHighSpeedFrameRate

**Description:** The **DefaultHighSpeedFrameRate** parameter determines high speed frame rate of FoIP packets.

**Values:**

- 30ms
- 60ms [default]
- 90ms
- 120ms
- 150ms
- 180ms
- 210ms
- 240ms

**Guidelines:** The **DefaultHighSpeedFrameRate** parameter is read-only.

## DefaultTcfPercentageErrorLimit

**Description:** The **DefaultTcfPercentageErrorLimit** parameter sets the percentage of TCF errors that the board will process before sending a TCF event to the host.

**Values:** A positive integer or hexadecimal value. The default value is 10.

**Guidelines:** The **DefaultTcfPercentageErrorLimit** parameter is read-only.

## DefaultRedundancyLevelV21Indicators

**Description:** The **DefaultRedundancyLevelV21Indicators** parameter sets the redundancy level of V21 indicators.

**Values:** A positive integer or hexadecimal value. The default value is 7.

**Guidelines:** The **DefaultRedundancyLevelV21Indicators** parameter is read-only.

## DefaultRedundancyLevelV21Data

**Description:** The **DefaultRedundancyLevelV21Data** parameter sets the redundancy level of V21 data signals.

**Values:** A positive integer or hexadecimal value. The default value is 6.

**Guidelines:** The **DefaultRedundancyLevelV21Data** parameter is read-only.

## DefaultRedundancyLevelHighSpeedEcm

**Description:** The **DefaultRedundancyLevelHighSpeedEcm** parameter sets the redundancy level of high speed ECM signals.

**Values:** A positive integer or hexadecimal value. The default value is 0.

**Guidelines:** The **DefaultRedundancyLevelHighSpeedEcm** parameter is read only.

## DefaultRedundancyLevelHighSpeedNonEcm

**Description:** The **DefaultRedundancyLevelHighSpeedNonEcm** parameter sets the redundancy level of high speed non-ECM signals.

**Values:** A positive integer or hexadecimal value. The default value is 1.

**Guidelines:** The **DefaultRedundancyLevelHighSpeedNonEcm** parameter is read-only.

## DefaultRedundancyLevelHighSpeedEof

**Description:** The **DefaultRedundancyLevelHighSpeedEof** parameter sets the redundancy level of high speed end of file signals.

**Values:** A positive integer or hexadecimal value. The default value is 1.

**Guidelines:** The **DefaultRedundancyLevelHighSpeedEof** parameter is read-only.

### DefaultRedundancyLevelHighSpeedEot

**Description:** The **DefaultRedundancyLevelHighSpeedEot** parameter sets the redundancy level of high speed end of transmission signals.

**Values:** A positive integer or hexadecimal value. The default value is 7.

**Guidelines:** The **DefaultRedundancyLevelHighSpeedEot** parameter is read-only.

### DefaultDynamicVariableRedundancy

**Description:** The **DefaultDynamicVariableRedundancy** parameter determines the redundancy level of dynamic variables.

**Values:** A positive integer or hexadecimal value. The default value is 0.

**Guidelines:** The **DefaultDynamicVariableRedundancy** parameter is read-only.

## 4.9 RFC2833 Configuration

The RFC2833 Configuration section of the *pmac.cfg* file allows you to customize how DTMF tone signals and telephony events are carried in RTP packets. Parameters in the RFC2833 Configuration section help avoid distortion of tones due to IP compression.The RFC2833 Configuration section includes the following parameters:

- DefaultRfc2833CapabilityTonePayloadType
- DefaultRfc2833CapabilityEventPayloadType
- DefaultRfc2833CapabilityRedundancyPayloadType
- DefaultRfc2833MuteAudio
- DefaultRfc2833RedLevel
- DefaultRfc2833ToneLossThreshold

### DefaultRfc2833CapabilityTonePayloadType

**Description:** The **DefaultRfc2833CapabilityTonePayloadType** defines the format of RTP tone payload types for RFC 2833.

**Values:** A positive integer or hexadecimal value. The default value is 0.

**Guidelines:** The **DefaultRfc2833CapabilityTonePayloadType** parameter is read/write.

### DefaultRfc2833CapabilityEventPayloadType

**Description:** The **DefaultRfc2833CapabilityEventPayloadType** defines the format of RTP event payload types for RFC 2833.

**Values:** 96 - 127

**Guidelines:** The **DefaultRfc2833CapabilityEventPayloadType** parameter is read/write.

### DefaultRfc2833CapabilityRedundancyPayloadType

**Description:** The **DefaultRfc2833CapabilityRedundancyPayloadType** parameter defines the format of RTP redundancy payload types for RFC 2833.

**Values:** 96 - 127

**Guidelines:** The **DefaultRfc2833CapabilityRedundancyPayloadType** parameter is read/write.

### DefaultRfc2833MuteAudio

**Description:** The **DefaultRfc2833MuteAudio** parameter determines whether or not audio is included in the IP tone packets.

**Values:**

- No_Audio [default]
- Send_Audio

**Guidelines:** The **DefaultRfc2833MuteAudio** parameter is read/write.

### DefaultRfc2833RedLevel

**Description:** The **DefaultRfc2833RedLevel** parameter determines the redundancy level on media that is received by the board.

**Values:** A positive integer or hexadecimal value. The default value is 5.

**Guidelines:** The **DefaultRfc2833RedLevel** parameter is not supported in the current system software release.

### DefaultRfc2833ToneLossThreshold

**Description:** The **DefaultRfc2833ToneLossThreshold** determines the threshold for tone packet loss. The threshold, when used with other RFC2833 Configuration parameters, allows you to develop a mechanism to monitor and regulate RFC2833 operations to ensure reliable tone transport.

**Values:** A positive integer or hexadecimal value. The default value is 1.

**Guidelines:** The **DefaultRfc2833ToneLossThreshold** parameter is not supported in the current system software release.

## 4.10 Driver Configuration

The Driver Configuration section of the *pmac.cfg* file allow you to optimize the board's throughput by customizing certain aspects of the Intel® IPT Series board's device driver. The following parameters are included in the Driver Configuration section:

- InboundTimer
- InboundQueueSizeThreshold
- OutboundTimer

- OutboundQueueSizeThreshold
- OrphanMsgTimeout

## InboundTimer

**Description:** The **InboundTimer** determines the timer setting for inbound messages. The value must be set in milliseconds.

**Values:** A positive integer or hexadecimal value. The default value is 50.

**Guidelines:** The **InboundTimer** parameter is read/write.

## InboundQueueSizeThreshold

**Description:** The **InboundQueueSizeThreshold** determines the size of the threshold for inbound messages.

**Values:** A positive integer or hexadecimal value. The default value is 50.

**Guidelines:** The **InboundQueueSizeThreshold** parameter is read/write.

## OutboundTimer

**Description:** The **OutboundTimer** determines the timer setting for outbound messages. The value must be set in milliseconds.

**Values:** A positive integer or hexadecimal value. The default value is 50.

**Guidelines:** The **OutboundTimer** parameter is read/write.

## OutboundQueueSizeThreshold

**Description:** The **OutboundQueueSizeThreshold** determines the size of the threshold for outbound messages.

**Values:** A positive integer or hexadecimal value. The default value is 50.

**Guidelines:** The **OutboundQueueSizeThreshold** parameter is read/write.

## OrphanMsgTimeout

**Description:** The **OrphanMsgTimeout** parameter specifies the timeout, in milliseconds, for orphan messages.

**Values:** A positive integer or hexadecimal value. The default value is 30.

**Guidelines:** The **OrphanMsgTimeout** parameter is read/write.