IBM 8265

Nways ATM Switch

CONTENTS

1 IMPORTANT INFORMATION

- **CPSW2 modules only:** ***To prevent unrecoverable hardware damage, do not install a v.3.x PCMCIA card, or download v.3.x code onto the CPSW2 module (FC6502).***

- This code release supports up to 2 levels of PNNI hierarchy (level 0 and level 1).

- In case of multi-vendor ATM switches interconnection in a PNNI hierarchical network, make sure that other switches are able to exercise correctly in a full-PNNI hierarchical network, before connecting it to an 8265 IBM V4 node.

- The CPSW2 module (FC6502) includes an integrated power controller (for fan and inventory management). The module contains a **red switch** located on the bottom left of the circuit board. Before installing the CPSW2 module, check that this switch is correctly set:

    - Switch OFF: Integrated Power Controller is Active.
    - Switch ON: Integrated Power Controller is Inactive.

- To interconnect with 8260s, 8285s, or 8265s that do not support PNNI hierarchies, you must upgrade the code on these switches to code level v3.2.0 (for 8260/8285) and v3.3.5 (for 8265). (See *8265 Installation Guide*.)

- The CPSW2 (FC6502) does not support 8260 ATM Media Modules (no backward compatibility).

- Migration limitation from PNNI V3 code to PNNI V4 code (See section *5.3 Address Scoping for Static Reachable Addresses*)

- PNNI related commands have been modified (see *8265 Command Reference Guide*).

2 Known Problems

1. A module in slot 12 will be powered up by the new CPSW2 module (FC 6502) only if the chassis is a Release 4 chassis (P/N 26L0112 or 02L4093).

   The chassis level (in fact the backplane level) can be displayed at the console, by issuing the command “SHOW INVENTORY VERBOSE”. Alternatively, look for a “Release 4” label on the bottom left-hand side of the front of the chassis.

2. Link swapping on IMA port groups is not supported in this code release. Link Ids must be identical on both ends of the connection (Same Tx/Rx)

   Example of valid configuration :

   Port 2.5 (link ID 0) ----------CABLE 1----------PORT 6.1 (link ID 0)
   Port 2.6 (link ID 1) ----------CABLE 2----------PORT 6.3 (link ID 1)
   Port 2.7 (link ID 2) ----------CABLE 3----------PORT 6.4 (link ID 2)

   Example of invalid configuration :

   Port 2.5 (link ID 0) ----------CABLE 1----------PORT 6.3 (link ID 1)
   Port 2.6 (link ID 1) ----------CABLE 2----------PORT 6.4 (link ID 2)
   Port 2.7 (link ID 2) ----------CABLE 3----------PORT 6.1 (link ID 0)

   The connected links can be checked with the "SHOW MODULE IMA_GROUP VERBOSE" command, which will immediately show if there are any swapped links and will give the appropriate indications to connect links in the same order as on the remote side (Tx/Rx numbers).

3. Following a power-on or CPSW module reset, the CPSW module may enter Maintenance mode with code 39 and the following message is displayed on the CPSW module LCD:

   " FAT DIAG ERROR IN RB TRAFFIC MODE"

   If this happens, reset the 8265 (or power off and then on again). The problem should not recur.

4. When a CPSW2 module is already active in slots 11-12 and a redundant CPSW2 with integrated power control is plugged in slot 9-10, the module must be inserted quickly so as not to disturb current traffic. As the CPSW2 module powers on immediately, the insertion levers must be pressed firmly within 2 seconds of the CPSW module display being lit. Otherwise, the module may start before all connecting pins are properly seated, producing unpredictable results.

3 MIB V4

If you manage your 8265 using network management software, update your MIB to level V4 by downloading the corresponding code from Internet web page:

http://www.networking.ibm.com/support/products.nsf/techsupport/(8265)?OpenDocument

Following are the MIB Changes in V4 (compared to 8265 v2.3):

- The two following attributes are now R/W:
  - ocPowerOverheatPowerDownMode
  - ocPowerSlotAdminStatus
- The following attribute is new (Ptses Dump):
  - pnniDumpVertex

4 8265 Modules FPGA Levels

Module	Feature Code	Faceplate	latest FPGA code
CPSW	6501	CPSW	1D13
CPSW2	6502	CPSW2	2D13
155 Mbps 4P Flex module	6543	A4-MB155	1D23 (1) 2D04 (2) 3D04 (3)
155 Mbps 4P MMF Integrated module	6540	A4-MF155	1D23 (1) 2D04 (2) 3D04 (3)
622 Mbps 1P MMF module	6511	A1-MF622	2D04 (2) 3D04 (3)
622 Mbps 1P SMF Module	6512	A1-SF622	2D04 (2) 3D04 (3)
Carrier 2.0 module	6558	A-CMU2	2D04 (2) 3D04 (3)
Carrier 2.5 module	6559 6560 6561	A-CMU2.5S A-CMU2.5A A-WAN2.5	2D14 2D14 2D14

(1) Applies to modules equipped with Xilinx chips 4020-3
(2) Applies to modules equipped with Xilinx chips 4020-2
(3) Applies to modules equipped with Xilinx chips 4036-2

5 Documentation Update

5 .1 Information from the Internet

8265 product information and code updates are available on the Internet at the following URL:

http://www.networking.ibm.com/support/products.nsf/techsupport/(8265)?OpenDocument

5 .2 VPI_VCI Parameter of SET PORT Command

The minimum number of VCI bits, as specified with the VPI_VCI parameter of the SET PORT command, is changed to 6 for all ranges. This gives the following values:

VPI Bits	VCI Bits (25 Mbps and E1/T1)	VCI Bits (All Other Ports)
0	**6**-12	**6**-14
1-4	**6**-10	**6**-10
5-6	**6**-8	**6**-8

5 .3 Address Scoping for Static Reachable Addresses

New and migrated static reachable addresses are assigned a default SCOPE value of 1-3 (PNNI level 96).

Thus, if you change the level identifier of node:0 to a higher value (for example, 88), the default static reachable addresses will not be advertised outside the node. To ensure that static reachable addresses are advertised outside such a node, use the SCOPE parameter of the SET REACHABLE ADDRESS command to change the scope of each static reachable address to, for example, ‘4’ (PNNI level 80).

Note that there is no other way to change the scope in the current code level.

6 Networking Rules

This section describes 8265 module performance and lists the rules to follow when building and validating your network.

6 .1 ATM Peer Group Intraconnection (PNNI)

An ATM Peer Group is a group of ATM hubs or switches interconnected by Private Network-to-Network Interfaces (PNNI). The PNNI protocol supports networking functions such as routing, node failure and recovery, backup and topology management.

- **Number of Switches in the Same Peer Group:**

  Depending on the network topology and complexity, the peer-group can have up to 100 nodes (assuming there are up to 200 foreign addresses and 500 links in the peer group).

- **Network Recommandations for LAN Emulation System:**

  a. Limit the number of nodes to 50.
  b. Separate 8265 Network Management functions (internal LECs) from user workstations.

- **Maximum Number of Physical Links and/or PNNI VPCs per 8265:** 32

6 .2 ATM Peer Group Interconnection (IISP)

Interim Inter-switch Signalling Protocol (IISP) defines the interface between two 8265s belonging to different ATM Peer Groups in the same subnetwork or in different subnetworks.

- IISP links are supported over both physical links and Virtual Path connections (VP tunneling).
- Parallel IISP links can be enabled between two clusters.
- The following limitations apply when configuring IISP ports:
  - PVCs cannot be defined through IISP links. It is necessary to define a PVC on each individual Peer Group involved in the connection.
  - The maximum number of reachable addresses that can be defined per 8265 is 64.

6 .3 IP Over ATM (RFC 1577)

- The CPSW supports an IP client implementation to be managed over ATM (SNMP, Telnet, TFTP, Ping). The supported MTU size is 9188 bytes.
- The IP Over ATM client imbedded in the CPSW supports up to 64 concurrent IP Over ATM connections.

6 .4 ATM Forum Compliant LAN Emulation Client

Each 8265 LAN Emulation Client supports up to 30 connections to other LECs.

End of document