ZyXEL Prestige 1600

ZyNOS v2.50(X.06) | 06/12/2000

Release Notes & Manual Supplement

Date: June 26, 2000

Congratulations on your purchase of P1600 Access Concentrator. The Prestige 1600 is a scalable DSL and analog Modem platform, delivering networking services at multiple selectable speeds from 56Kbps and 2Mbps. It can be deployed at high rise buildings, Telcos, ISPs and System Integrators with various configurations.

Equipped with one 10/100M Ethernet port, three Network Module Slots, and one optional WAN interface and one four-ports 10M/100M LAN switch card, the architecture of the Prestige 1600 allows network modules of different generations to co-exist in the same chassis and to inter-operate with the same system module.

IDSL solution is available now. Each Prestige 1600 provides up to 32 IDSL ports, and is equipped with 10/100M Ethernet as a daisy chain for connecting up to five units (thus a maximum of 160 IDSL ports).

Modem NM, ADSL NM, and SDSL NM will be available in the future.

Support Platforms:

ZyXEL Prestige firmware V2.50(X.06) supports both P1600 Master and Slave hardware platforms.

Version:

ZyNOS F/W Version: V2.50(X.06) | 6/12/2000 15:54:36
BootBase: V1.06 | 6/12/2000 15:54:36

Notes:

1. IP multicast is not supported at this release.
2. Default romfile 250x05c0.rom is for master P1600 whose 32 IDSL ports have been active already. A slave romfile will be released at Slave P1600 HW release.
3. **Due to Hardware limitation, C2-2 sample can only support 8M bytes flash memory. For C2-2 user, please use b03 Firmware version only. This release can not be applied to C2-2 sample.**
4. Menu 1 DNS Server IP address setup will fail at first configuration, it is fixed at this version.
5. Prestige 1600 Configuration and Management Guide Chapter 11 Telnet Configuration and Capabilities is removed, this function will be replaced by Multi-NAT and Telnet Client at next release.

Known Bugs:

1. During LAB test, IDSL Network Module may stop transmit or receive after heavy traffic applied to WAN, LAN and IDSL ports.
2. First time configure Menu 22 SNMP setting will take effect after system reboot.

Features:

Machine Types

The P1600 family consists of two models: Master and slave. The P1600 Master has 32 IDSL ports, one Flex Wan port (T1/E1), and a 4-port 10/100M Ethernet switch. The P1600 Slave has 32 IDSL ports and one 10/100M Ethernet port. Four slaves P1600 can be linked to a P1600 Master via Ethernet to form a high capacity IDSL concentrator system (up to 160 IDSL ports).

Configuration Types

The P1600 Master can be configured only as a Master. The P1600 Slave can be configured as Slave 1, Slave 2, Slave 3, Slave 4 and a Standalone.

Variety of Network Interfaces

The P1600 Master has three network interfaces: Ethernet, IDSL and WAN. The P1600 Slave has two interfaces: Ethernet and IDSL.

The IDSL interface consists of 32 ports in both the Master 1600 and the Slave 1600. Thus your concentrator can provide up to 160 IDSL ports.

The WAN port supports RS-232, EIA 530,RS-422, X.21 and V.35 interface for T1/E1 in the P1600 Master.
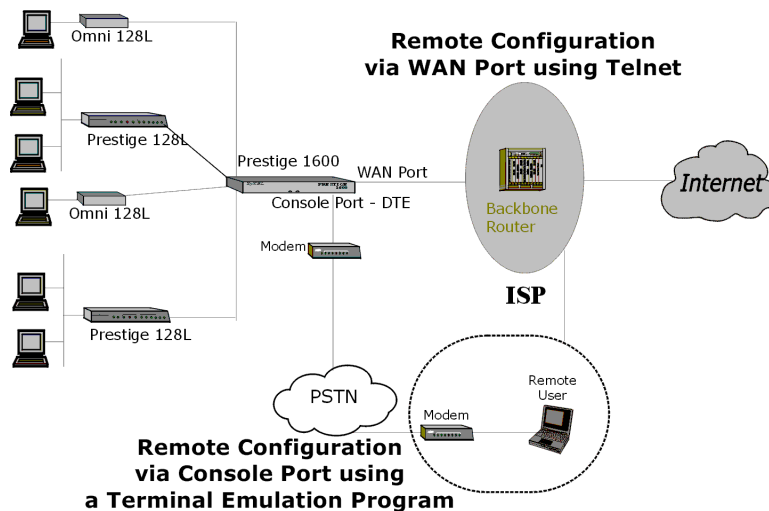
Network Protocol Support

The P1600 supports the following network protocols:

- TCP/IP (Transmission Control Protocol/Internet Protocol) network layer protocol.

- IP Policy Routing

- Routing Information Protocol (RIP-1 and RIP-2)

- ARP (Address Resolution Protocol)

- UDP (User Datagram Protocol)

- ICMP (Internet Control Message Protocol)

Full Network Management

Your Prestige 1600 offers you a variety of options for network management. It supports password protected local and remote network management via the console port or a telnet connection using SMT. It also supports FTP server for remote management, TFTP, SNMP (Simple Network Management Protocol) and CI command.

If you cannot telnet to your Prestige, you can remotely configure your Prestige via the console port. A modem can be attached directly to the console port (DTE) for easy, alternative remote configuration as shown in the figure.

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Figure 0-1 Remote Configuration

Robust Security Features

Your P1600 supports CHAP (Challenge Handshake Authentication Protocol), PAP (Password Authentication Protocol) and RADIUS (Remote Authentication Dial in User Service). In addition, the SMT is password protected. You can also configure the LAN, WAN and telnet filters to block unwanted incoming and outgoing packets.

Internet Access Sharing

The Prestige 1600 Master and the Prestige 128L provide Single User Account (SUA)/Network Address Translation (NAT) which enables multiple stations on the LAN to access the Internet for the cost of a single IP address. ZyXEL Network Operating System (ZyNOS) supports PAT (Port Address Translation). ZyNOS's SUA supports NetMeeting, CuSeeMe, ICQ and other multimedia applications on the client side.

Note that only P1600 Slave machine does not support SUA/NAT. Only the P1600 Master supports SUA/NAT on the WAN port. But in the case of Ethernet connection to a broadband modem, the P1600 Standalone supports NAT/SUA over LAN.

CPE Devices

Prestige 1600 is compatible with two Customer Premise Equipment (CPE) : Prestige 128L IDSL router and Omni 128L IDSL Modem.

Example P1600 Setup

The next figure shows an example of P1600 Concentrator, its LAN, WAN and IDSL interfaces, IP address assignment and SUA functionality. For more details please refer to the following chapters.
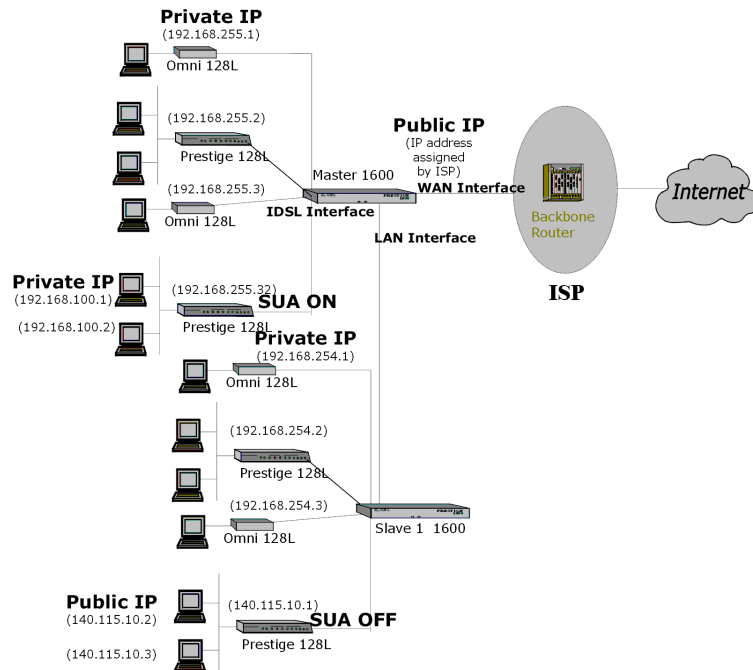
Figure 0-2 E

To Update P1600

P1600

Versions:
   ZyNOS F/W Version: V2.50(X.06) | 6/12/2000 15:54:36
   BootBase: V1.06 | 6/12/2000 15:54:36

Boot Extension Commands:
   ATBAx: Where x = baud rate
         options available are:
                1= 38.4K
                2= 19.2K
                3= 9.6K
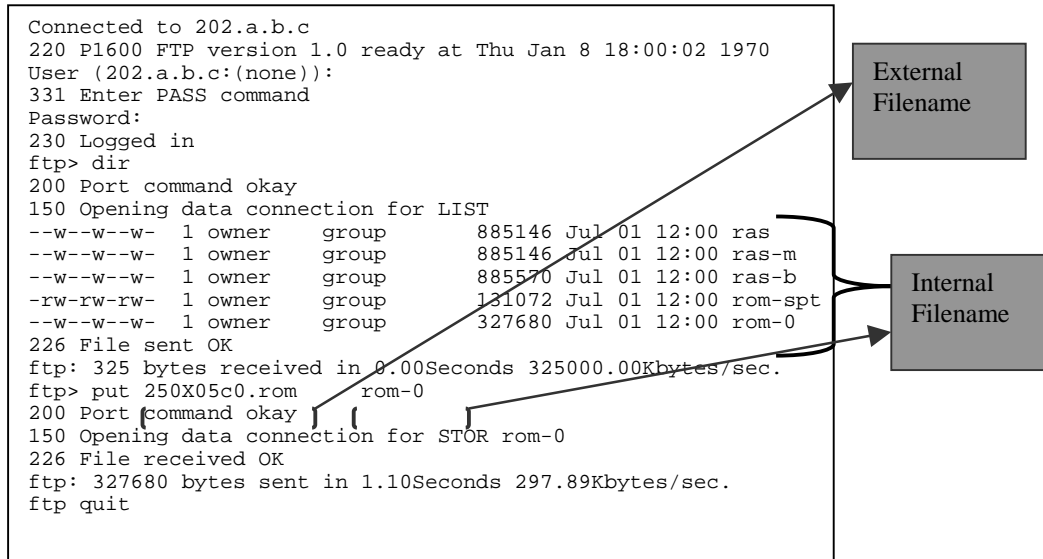   4= 57.6K
                5= 115.2K
   ATUR: Upload Firmware file via XMODEM
   File Name : p1600.bin

Romfile: p1600.rom
   ATUR3: Upload Romfile and clear all settings, the setting will change to
   manufactory setting, baud rate sets to 9.6K, please change to 9.6K for further
   configuration.

FTP Upgrade

There are two set of filenames: internal (in P1600) and external (in PC, MAC, or UNIX). Each set contains ZyNOS firmware and the configuration file. Firmware file contains the firmware and the configuration file contains the SMT menu settings, defaults etc. The internal names are ras-m and ras-b (firmware files) and rom-spt and rom-0 (configuration files).

```
Connected to 202.a.b.c
220 P1600 FTP version 1.0 ready at Thu Jan 8 18:00:02 1970
User (202.a.b.c:(none)):
331 Enter PASS command
Password:
230 Logged in
ftp> dir
200 Port command okay
150 Opening data connection for LIST
--w--w--w-  1 owner     group      885146 Jul 01 12:00 ras
--w--w--w-  1 owner     group      885146 Jul 01 12:00 ras-m
--w--w--w-  1 owner     group      885570 Jul 01 12:00 ras-b
-rw-rw-rw-  1 owner     group      131072 Jul 01 12:00 rom-spt
--w--w--w-  1 owner     group      327680 Jul 01 12:00 rom-0
226 File sent OK
ftp: 325 bytes received in 0.00Seconds 325000.00Kbytes/sec.
ftp> put 250X05c0.rom     rom-0
200 Port command okay
150 Opening data connection for STOR rom-0
226 File received OK
ftp: 327680 bytes sent in 1.10Seconds 297.89Kbytes/sec.
ftp quit
```

External Filename

Internal Filename

Figure FTP Example

Usually, the external firmware filename is the router model name with a bin extension, e.g., p1600mas.bin. Rename it as "ras-m" or "ras-b" when uploading to the Prestige main block and backup block respectively using TFTP or FTP. You don't have to rename the file when using XMODEM protocol.

The external configuration filename is usually the router model name with a *.rom extension, e.g.1600mas.rom. Rename it as rom-spt and rom-0 when transferring files to the Prestige. Renaming is not necessary if you transfer files using XMODEM protocol.

Table Filenames

Internal Filename	Description	External Filename	FTP Command Example
rom-spt	The rom-spt file is the user configuration file. It contains your Prestige configurations such as IP addresses, Remote Node settings etc. as well as your password.	*.rom	get rom-spt (backup) put rom-spt (restore)

rom-0	The rom-0 configuration file is the entire factory configuration file. It includes rom-spt, default settings, file system, log, etc. Uploading the rom-0 file replaces the entire ROM file system, including your Prestige configurations, system-related data (including the baud rate and default password), the error log and the trace log.	*.rom	put p1600mas.rom rom-0 (upload)
ras	This is the firmware filename for all Prestige models. This is ras-m when you upload the firmware to the main block and ras-b when you save the current firmware to the backup block.	*.bin	
ras-m	This is the router firmware filename on the Prestige 1600 when you are transferring files to the main block.	*.bin	put p1600.bin ras-m (upload)
ras-b	This is the router firmware filename on the Prestige 1600 when you are transferring files to the backup block.	*.bin	put p1600.bin ras-b (upload)

ZyNOS V2.50(X.00)b05| 2/25/2000 14:59:31

Support Platforms:

ZyXEL Prestige firmware V2.50(X.00)b05 supports both P1600 Master and Slave hardware platforms.

Version:

ZyNOS F/W Version: V2.50(X.00)b04 | 2/25/2000 14:59:31
BootBase: V1.04 | 2/25/2000 14:59:31

Notes:

6. In this beta release, P1600 doesn't support IP multicast.
7. Default romfile 250x00b5.rom is for master P1600 whose 32 IDSL ports have been setup already. A slave romfile will be released at Slave P1600 HW release.
8. **This version is 32M version. It's a normal version. It is for C2-1 and C3 samples, not for C2-2 sample, since C2-2 sample only can use 8M bytes memory. For C2-2 user, please use b03 version only.**

New Features:

1. Support Intel Flash

Changes:

1. Add IP routing entry number form 256 to 512.
2. Add DNS assign via PPP.

ZyNOS V2.50(X.00)b04 | 2/25/2000 14:59:31

Support Platforms:

ZyXEL Prestige firmware V2.50(X.00)b04 supports both P1600 Master and Slave hardware platforms.

Version:

ZyNOS F/W Version: V2.50(X.00)b04 | 2/25/2000 14:59:31
BootBase: V1.04 | 2/25/2000 14:59:31

Notes:

9. In this beta release, P1600 doesn't support IP multicast.
10.   We provide two romfile0. "250x00b4.rom" is the empty romfil0, and "250x00b4.mas" is the romfile0 for master whose 32 IDSL ports have been setup already.
11.   **This version is 32M version. It's a normal version. It is for C2-1 and C3 samples, not for C2-2 sample, since C2-2 sample only can use 8M bytes memory. For C2-2 user, please use b03 version only.**

New Features:

2. Support Intel Flash

Changes:

2. Add IP routing entry number form 256 to 512.

ZyNOS V2.50(X.00)b03 | 1/19/2000 17:00:15

Support Platforms:

ZyXEL Prestige firmware V2.50(X.00)b03 supports both P1600 Master and Slave hardware platforms.

Version:

ZyNOS F/W Version: V2.50(X.00)b03 | 1/19/2000 17:00:15
BootBase: V1.03 | 12/30/1999 15:00:11

Notes:

12.   In this beta release, P1600 doesn't support IP multicast.

13.   We provide two romfile0. "p1600.rom" is the empty romfil0, and "p1600mas.rom" is the romfile0 for master whose 32 IDSL ports have been setup already.

14.   **The new CPU board mounted in 1.5U case has a hardware problem, so it can only use 8M bytes memory. We released the special version, V2.50(X.00)b03, for the 8M CPU board. Although it only has 8M memory, it will not influence P1600 normal operation. After we have new CPU board, we will release 32M version. This version can also be installed in old 1U P1600.**

New Features:

3. RADIUS

   Prestige has a build-in IDSL user list. But you also can use RADIUS server to manage these IDSL users. We only support RADIUS for PPP authentication.

4. IP policy routing

   IP Policy Routing is a routing scheme to define a matching criteria and the action to be taken when a packet meets the criteria. Similar to filter configuration, two menus are involved for configuration. Menu 25 is used for defining a policy set. Prestige can support up to 12 policy sets. Each set contains 6 rules at most. It defines matching criteria including source address, source port, destination address, destination port, protocol, precedence, type of service, packet length. The action could be set on criteria match or unmatch to be taken for changing packet gateway address instead of normal routing path, or new type of service, and /or precedence, and log to UNIX syslog on action taken. Unlike filter set, policy set can be deleted by clearing its name, so each set is required to be given a name. Whenever a set is deleted, all 6 rules are deleted too. To apply policy sets to LAN, a new field called 'IP policies' in Menu 3.2 is introduced. Maximum 4 sets can be applied to an incoming interface. Same field in Menu 11.3 is used for remote node.

5. SNMP

  - Supported MIBS

   P1600 supports MIB II that is defined in RFC-1213. It can also response the specific data for the ZyXEL private MIB (ZYXEL-MIB).

   Notice: when the SMT has been logged in, the set-request will be ignored for the protection of data.

  - SNMP Traps

   P1600 will send traps to the SNMP manager when anyone of the following events happens:

   1. coldStart (defined in RFC-1215)

     If the machine coldstarts, the trap will be sent after booting.

   2. warmStart (defined in RFC-1215)

     If the machine warmstarts, the trap will be sent after booting.

   3. linkDown (defined in RFC-1215)

If any link of IDSL or WAN is down, the trap will be sent with the port number. The port number is its interface index under the interface group.
Port 1: Ethernet LAN
Port 2: WAN
Port 3: IDSL 1
Port 4: IDSL 2
…
Port 34: IDSL 32

4. linkUp (defined in RFC-1215)
If any link of IDSL or WAN is up, the trap will be sent with the port number. The port number is its interface index under the interface group.

5. authenticationFailure (defined in RFC-1215)
When receiving any SNMP get or set requirement with wrong community, this trap is sent to the manager.

6. whyReboot (defined in ZYXEL-MIB)
When the system is going to restart (warmstart), the trap will be sent with the reason of restart before rebooting.

(i) For intentional reboot
In some cases (download new files and CI command "sys reboot"), reboot is done intentionally. And traps with the message "System reboot by user!" will be sent.

(ii) For fatal error
System has to reboot for some fatal errors. And traps with the message of the fatal code will be sent.

Bugs Fixed:

1. The transmission rate under "Tx(Byte/s)" and "Rx(Byte/s)" fields in Menu 24.1.2/3 will not be updated to 0, if user unplugged IDSL line from P1600 IDSL port and there is traffic on the line. Fixed

2. P1600 will crash, when user is backup rom-spt and interrupt the transfer. Fixed.

3. P1600 can't support IP routes more than 128. Fixed.

4. P1600 can't be set system name and location more than 15 characters by SNMP manager. Fixed.

5. Wrong default RIP & SUA problems. Fixed.

6. User can't input port number, which is more than 3 characters, in menu 14 and menu 24.4. Fixed.

7. Master P1600 will crash under heavy traffic. Fixed.

Changes:

3. CI commands "ip route status" and "ip arp status" have page break in every 20 lines. User can press ESC to escape.

4. Remove "insight" CI command.

ZyNOS V2.50(X.00)b01 | 11/20/1999 11:02:02

Support Platforms:

ZyXEL Prestige firmware V2.50(X.00)b01 supports both P1600 Master and Slave hardware platforms.

Version:

ZyNOS F/W Version: V2.50(X.00)b01 | 11/20/1999 11:02:02
BootBase: V1.01 | 11/09/1999 13:30:00

Notes:

In this Beta release, P1600 doesn't support the following features:

1. IP policy routing
2. IP multicast
3. RADIUS
4. SNMP

These features will be supported in later release.

In this release, we provide two romfile0. "p1600.rom" is the empty romfil0, and "p1600mas.rom" is the romfile0 for master whose 32 IDSL ports have been setup already.

Known Bugs:

2. The transmission rate under "Tx(Byte/s)" and "Rx(Byte/s)" fields in Menu 24.1.2/3 will not be updated to 0 if unplug P128L from P1600 IDSL port when there exists traffic on the line.
3. There are some problems in getting rom-spt by FTP, so we disable this function currently.