



SPECIFICATIONS

Of Wireless DSL Gateway

GT704-WG

Ver. 1.10
Date: 1/11/2004

Contents

1. Description of Wireless DSL Gateway

2. Features

3. Software Specifications

4. Physical Specifications

5. Environmental Operating Range

6. Power Requirements

7. Power Dissipation

Appendix: GT704-WG Panel, LED and Connectors Definition

1. Description of Wireless DSL Gateway

Actiontec Wireless DSL Gateway (GT704-WG) is designed for residential and small-office applications to link to the internet using ADSL. This device incorporates a built-in broadband ADSL interface, wireless LAN access and Four Fast Ethernet switch ports, all in one compact-sized box.

The device includes TI's TNETD7300 Broadband Communication Processor and Peripherals. The TNETD7300 is the most densely integrated system-on-a-chip ever offered to the ADSL CPE market by Texas Instruments. The TNETD7300 is an ADSL bridge/router solution, integrating a broadband communications processor and peripherals, ADSL physical layer, ADSL line driver, USB physical layer, and Ethernet physical layer.

The device also includes TI's TNETW1130 Medium-Access Controller(MAC) and Baseband Processor for Wireless-LAN(WLAN) application. The TNETW1130 supports IEEE Std 802.11b(2.4GHz-band) and IEEE Std 802.11g(2.4GHz-band) system. Wireless LAN speeds are up to 54Mbps.

This device comes with four built-in 10/100Mbps switch ports, providing instant connection to Fast Ethernet servers and workstations. All switch ports support autosensing of network speeds, full/half duplex and MDI/MDI-X auto crossover.

With a built-in IEEE 802.11b/g wireless LAN interface, the GT704-WG connects all wireless user together (with speeds up to 54Mbps) while providing them with the internet access. WEP 64/128/256 bit encryption, 802.1x, WPA and WPA-PSK wireless security are supported.

The integrated ADSL modem is rate-adaptive and it supports downstream data rates up to 8Mbps and upstream data rates up to 1 Mbps. This hardware also supports ADSL2/2+ standard which will come in the future firmware upgrades.

2. Features

- Supports Plug-and-Play installation for systems with Windows Operating Systems (98, 98SE, Me, 2000 and XP)
- Support One ADSL WAN port (RJ11)
- Compliant with full-rate ANSI T1.413 Issue 2, ITU G.992.1(G.dmt) and G.992.2(G.lite) standard
- Auto-handshake for different ADSL flavors
- Compliant with USB 1.1 device specification
- Supports 12-Mbits/s USB data rate (Full Speed)
- Bridged Ethernet over ATM, PPP over ATM, PPP over Ethernet
- Precise ATM traffic shaping
- IP packet routing and transparent bridge
- Routing protocol supports RIP-1, RIP-2, Static Routing
- Build-in NAT, DHCP server
- DNS relay support
- PAP/CHAP authentication, administrative passwords through Telnet
- 64, 128 and 256-bit WEP and WPA wireless LAN security
- Compliant with IEEE 802.3 Ethernet standard
- Supports Four 10/100 Base-T Ethernet ports
- Flow control support for Fast Ethernet
- Web-based configuration setup
- Default configuration backup restore
- FTP firmware upgradeable
- Support web download
- Support 802.11b/g

3. Software Specifications

Features	Descriptions
ADSL	- ITU G.992.1 (G.dmt), G.992.2 (G.Lite), G.994.1 (G.hs), G.992.3 (G.dmt.bis)**, G.992.4(G.lite.bis)**, G.992.5 (ADSL2plus)** - ANSI T1.413 Issue2 ** available in future firmware upgrade
ATM	- ATM User-Network Interface, Version 3.1, Section 3. The ATM Forum, 1995. - The full VPI range (0 – 4095) and VCI range (1 – 65535) are supported. - Adaptation Layers AAL5, AAL2 and AAL0 are supported. - The traffic shaping function supports traffic classes CBR, VBR (real time and non-real time) and UBR (with PCR limiting).
OAM	- ITU-T Recommendation I.610 B-ISDN Operation and Maintenance Principles and Operations. - F5 segment and end-to-end loopback cells
Ethernet	- ISO/IEC 8802-3; ANSI/IEEE standard 802.3 part 3 - IEEE 802.3x – Full Duplex capable - IEEE 802.3u – Auto negotiation - RFC 1213 S K. McCloghrie, M. Rose, "Management Information Base for Network management of TCP/IP-based internets: MIB-II", 03/26/1991. - D-I-X, "The Ethernet - A Local Area Network: Data Link Layer and Physical Layer Specifications", Digital, Intel, and Xerox, November 1982.
Wireless	- IEEE 802.11B - IEEE 802.11G
Wireless Security	- WEP 64/128/256 bit encryption - WPA, WPA-PSK 802.1x - SSID Broadcast enable/disable
Bridge	- Transparent MAC level bridge for Ethernet-like devices in conformance with the IEEE802.1d specification. - ISO/IEC 10038:1993 (E), Std 802.1D. - RFC1213 S K. McCloghrie, M. Rose, "Management Information Base for Network Management of TCP/IP-based internets: MIB-II", 03/26/1991. - RFC1493 Definitions of Managed Objects for Bridges. E. Decker, P. Langille, A. Rijsinghani, & K. McCloghrie. July 1993.
IP	- RFC 791, Internet Protocol. J. Postel. Sep-01-1981. RFC 950, Internet Standard Subnetting Procedure. J.C. Mogul, J. Postel. Aug-01- 1985. - RFC 1122, Requirements for Internet hosts – communication layers. R.T. Braden. Oct-01-1989. - RFC 1191, Path MTU discovery. J.C. Mogul, S.E. Deering. Nov-01-1990. - RFC 1213, Management Information Base for Network Management of TCP/IP-based internets:MIB-II. K. McCloghrie, M.T. Rose. Mar-01-1991. - RFC 894, Standard for the transmission of IP datagrams over Ethernet networks. C. Hornig. Apr-01-1984.
ARP	RFC 826, Ethernet Address Resolution Protocol: Or converting network protocol addresses to 48.bit Ethernet address for transmission on Ethernet hardware. D.C. Plummer. Nov-01-1982.
ICMP	RFC 792, Internet Control Message Protocol. J. Postel. Sep-01-1981.
UDP	RFC 768, User Datagram Protocol. J. Postel. Aug-28-1980.
TCP	RFC 793, Transmission Control Protocol. J. Postel. Sep-01-1981.

IP Router	• Support Static Route.. • Support unnumbered mode
RIP	• RFC 1058, Routing Information Protocol. C.L. Hedrick. Jun-01-1988. • RFC 1723, RIP Version 2 - Carrying Additional Information. G. Malkin. November 1994. • RFC 2453, RIP Version 2. G. Malkin. November 1998. • RFC 1812, Requirements for IP Version 4 Routers. F. Baker. June 1995. • RFC 1191, Path MTU discovery. J.C. Mogul, S.E. Deering. Nov-01-1990.
DHCP Server	• RFC 2131: Dynamic Host Configuration Protocol: R. Droms, March 1997. • RFC 2132: DHCP Options and BOOTP Vendor Extensions: S. Alexander, March 1997.
DHCP Client	• RFC 2131: Dynamic Host Configuration Protocol: R. Droms, March 1997. • RFC 2132: DHCP Options and BOOTP Vendor Extensions: S. Alexander, March 1997. • The DHCP client supports the following minimal subset of options described in RFC2132: ◦ Requested IP Address (requested by default; is mandatory) ◦ Parameter Request list (subnet-mask only) ◦ IP Address Lease time (dhcp-lease-time) ◦ Client-identifier (dhcp-client-identifier) ◦ Default route (routers) ◦ DNS servers
DNS Relay	• RFC 1035, Domain names - implementation and specification. P.V. Mockapetris. Nov-01-1987.
NAT, PAT (IP Masquerading)	• RFC2663, "IP Network Address Translator (NAT) Terminology and Considerations, P.Srisuresh, M. Holdrege. August 1999. • RFC3022, Traditional IP Network Address Translator (Traditional NAT). P. Srisuresh, K. Egevang. January 2001.
NAT ALGs (Application Level Gateway) (NAT Pass Through)	• FTP (over NATP) • Netmeeting • IPSec • PPTP
NAT advanced features	• Port Forwarding • DMZ • Service Blocking: • Web site blocking • Web Activity Log
Firewall	• Stateful Firewall: multiple security levels. • Basic IDS: Stateful Packet Inspection for prevention of Denial of Service (DoS) attacks
Universal Plug and Play (UPnP)	• Internet Gateway Device (IGD) Standardized Device Control Protocol V 1.0, 11/12/2001
MAC Cloning	• Automatic cloning of client MAC address when desired or required
PPP	LCP • RFC1661 W. Simpson, "The Point-to-Point Protocol (PPP)", 07/21/1994. • RFC1570 W. Simpson, "PPP LCP Extensions", 01/11/1994. PAP • RFC1334 W Simpson, "PPP Authentication Protocols", 09/1992 CHAP • RFC1994 W. Simpson, "PPP Challenge Handshake Authentication Protocol

	(CHAP)", 08/30/1996. IPCP • RFC1332 G. McGregor, "The PPP Internet Protocol Control Protocol (IPCP)", 05/26/1992. BCP • RFC1638 F. Baker, R. Bowen, "PPP Bridging Control Protocol (BCP)", 06/09/1994.
PPPoA	• RFC 2364, PPP Over AAL5. G. Gross, M. Kaycee, A. Lin, A. Malis, J. Stephens, July 1998.
PPPoE	• RFC 2516, Method for Transmitting PPP Over Ethernet (PPPoE). L. Mamakos, K. Lidl, J. Evarts, D. Carrel, D. Simone, R. Wheeler. February 1999.
RFC1483	Supports bridged 802.3 Ethernet frames over an ATM network. • LLC encapsulation, in which an LLC/SNAP header is prepended to the (Ethernet) frame • VC multiplexing, in which a null two byte header is prepended to the frame. Default is LLC encapsulation; VC multiplexing can be configured using console command or WEB configuration. • RFC1483 J. Heinanen, "Multiprotocol Encapsulation over ATM Adaptation Layer 5", 07/20/1993. • RFC1213 S K. McCloghrie, M. Rose, "Management Information Base for Network Management of TCP/IP-based internets: MIB-II", 03/26/1991. • RFC 2684, Multiprotocol Encapsulation over ATM Adaptation Layer 5. D. Grossman, J. Heinanen. September 1999.
TELNET	• RFC 854 Telnet Protocol specification. J. Postel, J.K. Reynolds. May-01-1983. • RFC 855 Telnet option specifications. J. Postel, J.K. Reynolds. May-01-1983. • RFC 857 Telnet echo option. J. Postel, J.K. Reynolds. May-01-1983. • RFC 858 Telnet Suppress Go Ahead option. J. Postel, J.K. Reynolds. May-01-1983.
FTP Server/Client	• RFC 1350, The TFTP Protocol (Revision 2). K. Sollins. July 1992. • FTP server is in boot loader only.
Web server and Web Based Configuration	• RFC 1945, Hypertext Transfer Protocol -- HTTP/1.0. T. Berners-Lee, R. Fielding, H. Frystyk. May 1996. • RFC 2068, Hypertext Transfer Protocol -- HTTP/1.1. R. Fielding, J. Gettys, J. Mogul, H. Frystyk, T. Berners-Lee. January 1997. (Not full support). • RFC 2617, HTTP Authentication: Basic and Digest Access Authentication. J. Franks, P. Hallam-Baker, J. Hostetler, S. Lawrence, P. Leach, A. Luotonen, L. Stewart. June 1999.
PC Driver	• Microsoft RNDIS USB driver

4. Physical Specifications

- **Enclosure**

The enclosure has the following physical dimensions:

Length: 8 1/4 inch

Width: 5 1/2 inch

Height: 1 1/2 inch

- **Visual indicators**

The device has following 9 visual indicators:

Power: ON/OFF Ready indicator;

Solid Green = Power on; Green Controlled by GPIO7;

Off = Power off

Red = POST (Power On Self Test) failure (non bootable)
or Device Malfunction; Red Controlled By GPIO8;

LED Mode	Green Led	Red Led
Green	On	Off
Red	Off	On

DSL: Indicates ADSL layer connectivity

Solid Green = DSL good sync

Off = Modem power off

Flashing Green = DSL attempting sync

The LED Controlled By DSLLNK;

Internet: Internet indicator light that indicates whether or not it has at least one DSL Device-controlled session up. Green controlled by GPIO13, Red controlled by GPIO9;

Solid Green = IP connected (the device has a WAN IP address from IPCP or DHCP and DSL is up) and no traffic detected. If the IP or PPPoE session is dropped, the light will remain green if an ADSL connection is still present. The light will turn red when it attempts to reconnect and DHCP or PPPoE and fails.

Off = Modem power off, modem in bridged mode or ADSL connection not present.

Flickering Green = IP connected and IP Traffic is passing thru the device (either direction)

Red = Device attempted to become IP connected and failed (no DHCP response, no PPPoE response, PPPoE authentication failed, no IP address from IPCP, etc.)

For bridged mode, the indicator light MUST be off.

LED Mode	Green Led	Red Led
Green	On	Off
Red	Off	On
Off	Off	Off

Ethernet 1: LAN Port 1 indicator; Link & Activity; Default controlled By 88E6060 LED4_2 pin;

Solid Green = Powered device connected to the associated port

Flashing Green = LAN activity present (traffic in either direction)

Off = Modem power off or no powered device connected to the associated port

Ethernet 2: LAN Port 2 indicator; Link & Activity; Default controlled By 88E6060 LED3_2 pin;

Solid Green = Powered device connected to the associated port

Flashing Green = LAN activity present (traffic in either direction)

Off = Modem power off or no powered device connected to the associated port

Ethernet 3: LAN Port 3 indicator; Link & Activity; Default controlled By 88E6060 LED2_2 pin;

Solid Green = Powered device connected to the associated port

Flashing Green = LAN activity present (traffic in either direction)

Off = Modem power off or no powered device connected to the associated port

Ethernet 4: LAN Port 4 indicator; Link & Activity; Default controlled By 88E6060 LED1_2 pin;

Solid Green = Powered device connected to the associated port

Flashing Green = LAN activity present (traffic in either direction)

Off = Modem power off or no powered device connected to the associated port

USB: USB Port Indicator; Link & Activity; Controlled By GPIO12;

Solid Green = Powered device connected to the USB port

Flashing Green = USB activity present (traffic in either direction)

Off	=	Modem power off or no powered device connected to USB port.
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Wireless: Wireless Indicator; Controlled By GPIO6;

Solid Green	=	Wireless Card insert;
Flashing Green	=	Wireless activity present (traffic in either direction)
Off	=	Wireless is disabled within the firmware.

• **Connectors:**

Phone(RJ-11):	One for the ADSL line
RJ-45:	Four, one for each Ethernet LAN connection
USB:	One standard USB connector to connect to PC
Power:	One power connector for wall mount 12VDC power adapter
Reset Button:	Reset the unit and Reset to manufacturing default.
Power Switch:	One On/Off rocker switch
Antenna:	One detachable using an RP-SMA connector

5. Environmental Operating Range

Operating temperature:	0-40 degrees Celsius
Humidity:	8-95%, non-condensing

6. Power requirements

Operating voltage:	+12V DC +/- 5% @ 600mA max
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7. Power Dissipation

The typical approximated power dissipation is as below:

Power Dissipation for	GT704-WG
Active (typical)	12V DC @ 380mA