P2P FTTH Gateway

i6800-series

Residential Gateway

The Icotera i6800 residential gateway integrates optical Ethernet-based gigabit data transmission with Layer 2-4 functionality, VoIP, 802.11ac & bgn Wi-Fi, CATV and USB 3.0.

- Best-in-class Wi-Fi
- Ease of use & installation
- Vendor independent
- Smart Home platform
- Award-winning industrial design
- Lowest Total Cost of Ownership

Powerful hardware platform

The Icotera i6800 Fiber-to-the-Home (FTTH) gateway demonstrates its great strength by bringing together a wide feature set and flawless performance. Its foundation is built on a powerful, cutting-edge dual-core architecture. This, paired with an ASIC for packet forwarding, ensures the platform is always ready to cope with additional tasks while processing VoIP, Gigabit routing of IPv4 with NAT, IPv6 and stateful filtering, traffic switching/bridging and high speed Wi-Fi.

Next generation Wi-Fi solution

With Wi-Fi becoming the preferred communication technology inside the home, the need for fast and stable wireless connections is becoming ever more important. The i6800 delivers not only backwards compatibility with any 802.11a/b/g/n Wi-Fi certified device, but also includes the very latest standard — 802.11ac. With the added 802.11ac solution, the i6800 is capable of delivering 867+300 Mbps and more than 650 Mbps of combined throughput in real home and office environment.

Innovative feature set

The i6800 provides exceptional Layer 2 functionality that can effortlessly handle 16 bridging instances, 16 Wi-Fi APs over 2 radios, multiple WAN interfaces, PPPoE and in-band secure management. The CATV AGC receiver offers broadband cable-television services to the subscriber with seamless monitoring and configuration of the power levels. As an optional feature,

this FTTH gateway offers a complete and customizable filter solution with low-pass filters for individual RF channel plans.

Ease of control

A great variety of management protocols (e.g. SNMP v1/v2, syslog, SSH, Telnet and TR-069) is integrated and supported, which guarantees effortless control over the i6800. Paired with our fail-proof, zero-touch auto provisioning mechanism, they provide easy and trouble-free daily operations. To guarantee trouble-free firmware roll-outs in harsh network environments, the i6800 also comes with dual-bank firmware.

Integrated Smart Home platform

The i6800 gateway supports the unique Icotera Smart Home platform via state-of-the-art low-consuming wireless technology. The platform offers great solutions for end-users within Alarm & Surveillance, Energy Management and Home automation. The cloud-based platform connects to third party device-hardware, which makes the possibilities for connecting devices close to endless. For the network operator or service provider, the platform offers a unique opportunity for additional revenue streams and higher customer loyalty. The Icotera Smart Home platform is deeply integrated into the Icotera gateway, which makes the daily use effortless and very valuable for the modern household.

Icotera

i6800 Residential Gateway

FEATURES

- Best-in-class Wi-Fi solution
- Vendor-independent
- Award-winning industrial design
- Integrated CATV solution
- Low power consumption
- Optional operator branding
- Extensive IPv6 support
- Customized firmware
- Built-in Smart Home platform

NETWORK COMMUNICATION

WAN INTERFACE

- Single-mode fiber (ITU-T G.652) SC/PC connector
- 100BaseBX10/20 compliant
- 1000BaseBX10/20 compliant
- Tx: 1310 nm, Rx: 1480–1600 nm
- Full-duplex transmission
- Operating distance: 20 km
- Transmit power: -7 – -2 dBm
- Receive sensitivity: -3 – -23 dBm
- Class 1 laser product
- Auto detection of 100Mbps or Gigabit

LAN INTERFACE

- 4 RJ45 connectors 10/100/1000 Base T(X)
- Auto-negotiation for speed and duplex
- Auto MDI/MDX
- Jumbo packets
- 802.1x
- Integrated cable tester, detects:
  - Short
  - Open
  - Impedance mismatch
  - Cable length

LAYER 2

- 16 bridge instances
- 64 byte forwarding at line rate
- Jumbo 9k packets
- IGMP v1/v2/v3 snooping
- 802.1p marking
- VLAN support
- Wi-Fi support
- Transparent IPv6 forwarding
- DHCP relay with option 82
- 2k address entries
- Rate-limit per switch port

Wi-Fi INTERFACES

802.11ac Wi-Fi

- 2T2R MIMO
- 5 GHz band w/QAM256 and 80 MHz
- Authentication methods - Open - 802.1x - WEP64 - WEP128 - WPA-WPA2
- Up to 8 SSIDs
- MAC filtering
- Advanced channel selection
- Software Tx power control
- Extensive monitoring
- Neighbor scanning
- Beamforming
- LDPC + STBC
- Wireless Client Isolation

802.11bgn Wi-Fi

- 802.11B/G/N 2T2R MIMO
- 2.4 GHz band w/QAM64 and 40 MHz
- Authentication methods - Open - 802.1x - WEP64 - WEP128 - WPA - WPA2
- Up to 8 SSIDs
- MAC filtering
- Advanced channel selection
- Software Tx power control
- Extensive monitoring
- Neighbor scanning
- Wireless Client Isolation

LAYER 3

- Virtual interfaces
- Multiple WAN interfaces in one router
- 64 byte forwarding at line rate with routing/NAT
- IGMP v1/v2/v3 proxy with fast-leave and monitoring
- Stateful Firewall
- IPv4 - SNAT, DNAT, DMZ - DNS proxy - DHCP client and server
- IPv6 - Prefix delegation RFC3769 - DHCP client
- PPPoE (termination)
- 2k HW connection tracking
- SW connection tracking
- RTSP stateful proxy
- Protocol helpers for: SIP, FTP, TFTP, PPTP, L2TP and IPSec
- DNS based Parental-Control
- Guest Access

QoS

- 8 queues
- Layer 2 and 3 QoS features - Packet classification marking - Queuing - Scheduling - Rate-limiting
- Marking and Queuing w/ 802.1p, ToS, DiffServ classification
- Globally shared rate-limiting queues

USB

- 1x USB 3.0 host
- 1x USB 2.0 host
- Prepared for: Z-Wave, ZigBee, CAT-iq, Storage, Printers

VoIP

- 2 separate POTS lines SIP (RFC3261)
- 5 REN support
- DTMF signalling - SIP INFO - Inband - Auto - RFC 2833
- Caller ID support (DTMF/FSK/DTMF DK)
- CLIR
- Advanced dialplan
- B-Number manipulation
- Class 5 services - Forward all calls - Forward on busy - Forward on no answer - Call waiting
- Codecs: G.711A a-law - G.711U µ-law - G.722 - G.729AB
- Codec negotiation
- Modem/Fax detection
- Auto gain control
- Adaptive jitter buffer 10-300ms
- Silence suppression
- G.165 Echo Cancellation
- LEC (Line Echo Cancellation) 2- 128ms
- VAD (Voice Activity Detection)
- CNG (Comfort Noise Generation)
- PLC (Packet Loss Concealment)

CATV (OPTIONAL)

OPTICAL PARAMETERS

- Saturation power: +2dBm
- Input level range: -10 to 0 dBm
- Input wave length: 1270 - 1610 nm
- Optical connector: SC/APC
- ITU-T G.652 Single Mode fiber
- Software monitoring of RX level in 0.1 dB steps
- Low-signal LED configurable

RF PARAMETERS

- RF connector: 75 Ohm "F"
- Frequency: 45-870MHz
- EIN @-10dBm: 4 pA/√Hz
- EIN @ 0dBm: < 14 pA/√(Hz)
- Tilt: 5 dB
- RF output AGC @-8 to 0 dBm (3.5% OMI): 80 dBuV
- Max. RF output @ 0 dBm (3.5% OMI): 96 dBuV
- CNR (CENELEC 42 channels): ≥ 51 dB
- CSO (CENELEC 42 channels): ≥ 60 dBc
- CTB (CENELEC 42 channels): ≥ 60 dBc
- RF filters (optional): up to 2
- Software adjustable RF output level w/AGC

MANAGEMENT & MONITORING

- Shared or separate IP interface for management
- L1-L3 filters for all local services
- SSHv2 with key authentication
- Telnet with authentication
- End-user oriented web interface (configurable) - Wi-Fi - Guest network - LAN network - Port forwarding, NAT loopback, DMZ, DynDNS, Status and monitoring
- TR-069 supporting - TR-104 (VoIP) - TR-181 (Network)
- CLI with auto-completion
- SNMP v1/v2 (IF-MIB, ICOTERA private MIB)
- Multicast analyzer
  - Debugging of live Multicast streams
  - Provides detailed information from MPEG-TS and RTP layers
- Extensive debug possibilities
- Packet dumping
- All settings are stored locally in flash
- Zero-touch configuration with DHCP/TFTP/HTTP/FTP or TR-069
- Automatic firmware and configuration update (polling)
- Dual bank firmware w/ fail-safe upgrading
- LED brightness configurable by operator and/or End-User
- Hardware watchdog
- Wake-on-LAN for WebUI and CLI

OPERATIONAL SPECIFICATIONS

- DC12V input ±10%
- Power consumption maximum: 14.4 W (excl. USB ports)
- Operating temperature: 5 – 45°C
- Storage temperature: -20 – 85°C
- Humidity: 5% – 95% (non-condensing)

## PHYSICAL SPECIFICATIONS

CASING

- Weight: 395 g
- Size: 190 x 110 x 48 mm (W x H x D)
- Front LEDs configurable by operator and/or end-user: Power/WAN status (link/traffic/provisioning) - VoIP port 1 - VoIP port 2 - Wi-Fi - CATV (status/signal power)
- LAN status LEDs (link/traffic, duplex) per interface

FIBER TERMINATION UNIT (OPTIONAL)

- Slide-on mechanism for easy installation
- FTU support for - Gas block unit (sold separately) - WDM filter (sold separately)
- Optional blind cover for FTU

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i6800 Residential Gateway Configuration possibilities
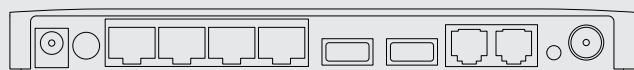
Gateway Interface Configurations:

Model	Uplink	LAN	USB	POTS	CATV	Wi-Fi	Antennas	Bottom
i6801:	BX20	4x	2x	2x	1x	802.11b/g/n + 802.11ac	2x2 Int.	FTU
i6802:	BX20	4x	2x	2x	1x	802.11b/g/n + 802.11ac	2x2 Int.	Patch
i6805:	BX20	4x	2x	2x		802.11b/g/n + 802.11ac	2x2 Int.	FTU
i6806:	BX20	4x	2x	2x		802.11b/g/n + 802.11ac	2x2 Int.	Patch

NOTE: Please contact Sales for further details on information listed and feature requests.

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