

The Calix GigaSpire® u6x (GS4227) is a new generation smart home system that integrates optical network termination (ONT) and residential gateway functionality into a single system*. It supports virtually any passive optical network (PON) and Ethernet technology, while providing the ultimate Wi-Fi experience. Besides supporting broadband connectivity of data and video services, this intelligent, high-performance system offers the latest 802.11ax 'Wi-Fi 6' technology. The GigaSpire BLAST u6x provides switching and routing functions that support multi-Gigabit throughput for IPTV video and data services.



Multi-Gigabit Subscriber Experience

The GigaSpire BLAST u6x is a premium smart home integrated system that delivers the latest Wi-Fi 6 certified technology (802.11ax). The GigaSpire BLAST u6x uses an SFP+ cage supporting a 10 Gigabit link* at the subscriber's premises to provide carrier-class WAN, including GPON and XGS PON, as well as 1 and 10 Gigabit Ethernet (both copper and Active Ethernet) options. On the LAN side, Wi-Fi and four (4) Gigabit Ethernet interfaces are available for customer multi-media devices.

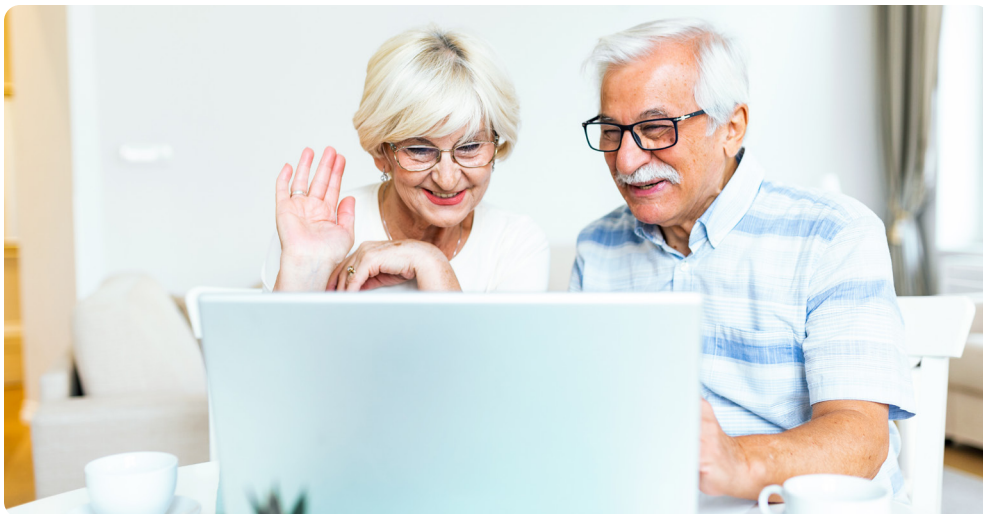
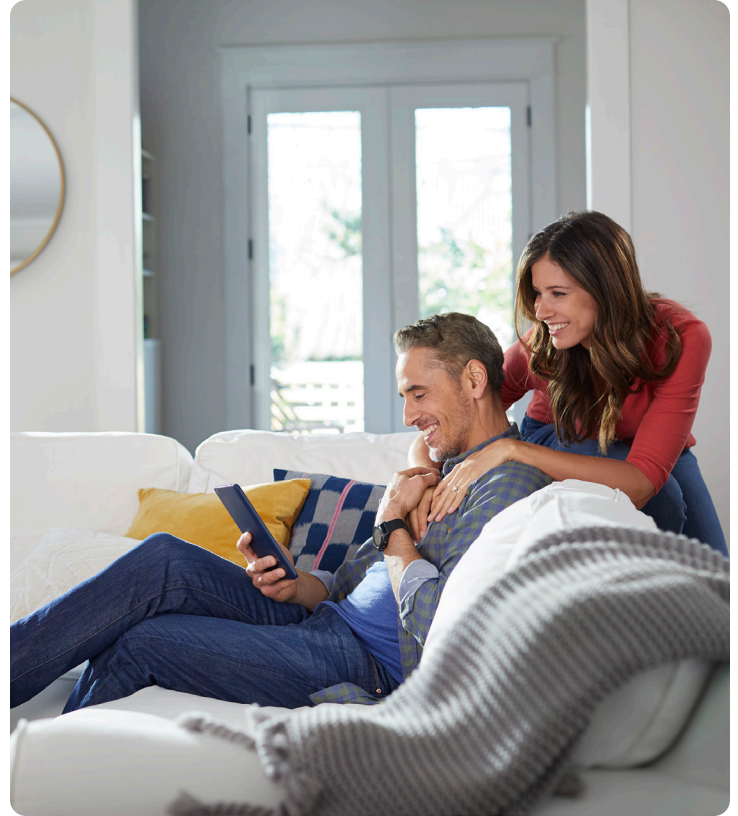
The GigaSpire BLAST u6x enables residential subscribers to receive Gigabit broadband data, Internet Protocol (IP) video, and voice (POTS) services. Using the latest 802.11ax technology in both the 2.4 and 5 GHz radios, the GigaSpire BLAST u6x incorporates 6x6 streams of Wi-Fi delivery (2x2 @ 2.4 GHz and 4x4 @ 5 GHz). In addition, with multi-user multiple-input and multiple-output (MU-MIMO) and beamforming, the GigaSpire BLAST u6x allows service providers to extend the access network inside the home and establish a strategic location for the delivery and control of broadband services. With Wi-Fi being the de facto wireless data communication technology of choice for consumers, Calix engineered the GigaSpire BLAST u6x for optimal whole-home coverage with simultaneous dual-band 2.4 GHz and 5 GHz operation and dynamic beamforming in both spectrums.

Leveraging the latest Wi-Fi 6 features, the GigaSpire BLAST u6x provides longer range, higher efficiency, and less interference compared to earlier generations of Wi-Fi technology. The GigaSpire BLAST u6x also supports the entire 5 GHz band, including Dynamic Frequency Selection (DFS) channels and can be provisioned to support 160 MHz channel bandwidth at 5 GHz. The GigaSpire BLAST u6x easily delivers HD and UHD (ultra-HD) video and data throughout a subscriber's home in an increasingly video-rich and mobile broadband environment. Ensuring consumers can have ultra-fast Wi-Fi throughout their premises, the GigaSpire BLAST u6x provides the latest generation of redundant Wi-Fi 6 mesh via the Calix GigaSpire Mesh GigaSpire BLAST u4m (please see the GM1028 data sheet for more information). With the GigaSpire BLAST u6x as the hub, and the Mesh GigaSpire BLAST u4m as the satellite extenders, consumers can truly gain the whole home/smart home experience. For even higher mesh performance, an additional GigaSpire BLAST u6 system, such as the GigaSpire BLAST u6.1, can also be deployed as a mesh unit. This means that two GigaSpire BLAST u6 systems can connect to each other with one being the residential gateway and the other being the mesh.

Easy to Install, Activate, and Maintain

With the GigaSpire BLAST u6x integrated system, Calix has redefined how to install and activate residential services at a subscriber's premises. Using CommandIQ® and a phone or laptop, a field technician can install and apply the subscriber's service profile without special equipment or assistance from the central office. Calix also provides the innovative Calix Support Cloud (CSC), which allows the service provider to configure, activate and upgrade the GigaSpire BLAST u6x quickly from a remote location using in-band management, TR-069, or ONT Management Control Interface (OMCI).

Extensive troubleshooting capabilities, remote software downloads, and easy-to-use service activation features ensure that services are delivered and maintained without needless truck rolls and hardware upgrades. Deploying GigaSpire BLAST u6x systems allows service providers to reduce their operational expenses while effectively delivering the Gigabit experience to their subscribers. If a PON module is being used, PON configuration and management is done via the OMCI protocol.



Calix Experience Innovation Platform

All GigaSpire BLAST systems are powered by the Calix Innovation Experience Platform.

This container-based platform allows service providers to quickly change and adapt their services to embrace new technologies and offer new, value-added services. This approach can generate recurring revenue and increase subscriber satisfaction.

Note: XGS PON technology, although referred to as “10 Gig PON” is limited to a maximum symmetrical throughput of approximately 8.5 Gbps, owing to various overhead limitations and network conditions.



Key Attributes

• Home Gateway:

- Layer 2 bridge and Layer 3 routing for High Speed Internet (HSI) data and IPTV video services
- DHCP server options
- DHCP (IPoE) and PPPoE network connections
- Network Access Translation (NAT), public to private IP addressing
- Configurable IP address schemes, subnets, static-IP addresses
- DNS server
- Bridge port assignment and data traffic mappings
- Port forwarding
- Firewall and security
- Application and website filtering
- Selectable forwarding and blocking policies
- DMZ hosting
- Parental controls, time of day usage
- Denial of service (DoS) protection
- MAC filtering
- Time/Zone support
- Universal Plug-and-Play (UPnP)

• Wi-Fi:

- 2.4 GHz and 5 GHz, simultaneous dual-band
- 5 GHz 802.11ax (Wi-Fi 6) certified, 802.11a/n/ac compatible
- 6x6 streams (2x2 @ 2.4 GHz and 4x4 @ 5 GHz)
- 2.4 GHz 802.11ax (Wi-Fi 6) certified, 802.11b/g/ac compatible
- WPA/WPA2/WPA3; WEP 64/128 bit encryption
- PuF (Physical Unclonable Functions)
- WPS push-button
- 4x4 DL/UL MU-MIMO with beamforming
- 1024 QAM; OFDMA; BSS Coloring
- DCM (Dual Carrier Modulation)
- TWT (Target Wake Time) for IoT clients

• Wi-Fi Redundant Mesh:

- Self Managed: self configuration, Air time fairness
- Dynamic Mesh: load balancing, band/node steering; interference management
- Self Healing: backhaul failover; diagnostics; events

• SFP + interface:

- Full 10 Gigabit bandwidth
- Supporting several SFP WAN modules, including: GPON, 10 Gigabit Ethernet (copper), 1G and 10G Active Ethernet, and XGS PON

• Gigabit Ethernet (GE) LAN interfaces:

- Four (4) ports of multi-rate 10/100/1000 BASE-T Ethernet, auto-negotiating for residential IPTV and data services

• Two voice lines:

- Carrier grade SIP, H.248 (aka Megaco) and MGCP¹

• USB port:

- USB 2.0 - Type A host interface

• Supports multiple data service profiles

• Traffic management and Quality of Service (QoS):

- 802.1Q VLANs
- 802.1p service prioritization
- Q-in-Q tagging
- Multiple VLANs
- DiffServ
- Pre-defined QoS on service type
- LAG of GE ports
- MAP-T

• IPTV, IGMPv2, future support of IGMPv3:

- IGMP Snooping and Proxy
- IGMP Fast Leaves

• Gateway Management:

- CSC (Calix Support Cloud)
- TR-069
- Local Home Gateway GUI, access provisionable
- Remote WAN side GUI access
- Default username/password

• AC to 12 V DV power adapter

• Optional UPS power unit available

¹ Currently supporting MetaSwitch and Ribbon softswitches

Specifications

Dimensions

- Width: 4.9 in (12.2 cm)
- Height: 9.9 in (25.2 cm)
- Depth: 4.9 in (12.2 cm)
- Weight: 41 oz (1.16 kg)

WAN Interface

- Interface: SFP+ cage (with options for GPON, 1 GBT, 10 GBT, XGS, and Active Ethernet)

Interfaces

- Wireless: 2.4 GHz 2x2 and 5 GHz 4x4 internal antennas
- LAN Data/IPTV: Four (4) 10/100/1000 BASE-T Ethernet port, RJ 45 connectors
- WAN: SFP+ cage
- USB: USB 2.0 Type A
- Voice: Two ports supporting Metaswitch; C15; C20 SIP; H.248 and MGCP
- Power: Single pin and 8-pin

Data

- Drop length: 328 feet (100 m) max using CAT5 cable for GigE
- Auto MDI/MDIX crossover for 1000BASE-TX, 100BASE-TX
- 10GBT: 110 feet (30m) CAT6e/7 cable
- Traffic Management and QoS: 802.11Q VLAN; 802.11p voice, video, data and management priorities; Q-in-Q tagging

Wireless

- 2.4 GHz 802.11 b/g/n/ac/ax
- 2x2 UL/DL MU-MIMO
- 5 GHz 802.11 a/n/ac/ax
- 4x4 DL/UL MU-MIMO, implicit/ explicit high-power, dynamic beamforming (5 GHz radio)
- 2x2 DL/UL MU-MIMO implicit/ explicit high-power, dynamic beamforming (2.4 GHz radio)
- 2.4 GHz and 5 GHz simultaneous
- DCM, TWT, extended GI
- Auto channel selecting and interference detection
- WPS, WPS push button Wi-Fi multimedia (WMM)

Remote Management

- TR-069 remote management
- TR-098 Internet Gateway Device Data Model

Environmental

- Operating temperature: Indoor ambient temperature, 0° to 40°C (32° to 104° F)
- Operating and storage relative humidity: 10 to 90 % and 5 to 95% non-condensing respectively

Certification and Compliance

- Emissions: FCC Part 15 Class B IC ICES-003 Class B CISPR-22
- Safety: UL 60950 and UL 1697 approved
- IEEE: 802.3, 802.3AB, 802.3U, 802.11p, 802.11Q
- Wi-Fi Alliance Certified 802.11ax



- USB-IF Compliance USB 2.0



Powering and Alarms

- Single pin and 8-pin
- Input voltage: 12 V DC (nominal)
- External Power Adapter: 12 V DC, 3A
- Optional UPS power unit available

Ookla-based Performance Testing

- Subscribers can run an Ookla- based performance test from within the Calix CommandIQ® mobile app
- Symmetrical speed test results in excess of 2 Gbps are possible with the GigaSpire BLAST u6x system (when a 10 GigE or GPON SFP module is activated)