

The logo for GigaSpire u6x, featuring a white Wi-Fi symbol above the text 'GigaSpire' in white and orange, with 'u6x' in white below it.

The 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 u6x provides switching and routing functions that support multi-Gigabit throughput for IPTV video and data services.

MULTI-GIGABIT SUBSCRIBER EXPERIENCE

The GigaSpire u6x is a premium smart home integrated system that delivers the latest Wi-Fi 6 certified technology (802.11ax). The 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 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 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 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 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 u6x provides longer range, higher efficiency, and less interference compared to earlier generations of Wi-Fi technology. The u6x also supports the entire 5 GHz band, including Dynamic Frequency Selection (DFS) channels. The 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 u6x provides the latest generation of redundant Wi-Fi 6 mesh via the GigaSpire u4m (please see the GM1028 data sheet for more information). With the u6x as the hub, and the Mesh u4m as the satellite extenders, consumers can truly gain the whole home/smart home experience. For even higher mesh performance, an additional GigaSpire u6 system, such as the GigaSpire u6.2, can also be deployed as a mesh unit. This means that two GigaSpire 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 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 Service Cloud (CSC), which allows the service provider to configure, activate and upgrade the 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 the 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.

UNLIMITED SUBSCRIBER PLATFORM

Unlimited Subscriber brings the power of Calix Cloud into the daily lives of your residential and small business subscribers. High-capacity Unlimited Subscriber Wi-Fi systems can be deployed indoors and outdoors, on desks, walls, and poles – in any combination you need. And with Calix Cloud, your staff gets the insights and tools they need to differentiate your brand through amazing customer support.

All GigaSpire models are powered via the Calix Broadband Platform and operate from a common operating system, Experience OS (EXOS). This container-based operating system architecture allows service providers to quickly change and adapt their services to embrace innovative technologies and offer new, value-added services. This approach can generate recurring revenue and increase subscriber satisfaction.



SMARTLIFE™ MANAGED SERVICES

The Calix SmartLife suite of managed Wi-Fi solutions provides everything your community needs to connect and thrive, in the places they live, work, learn, and play. With SmartLife, you deliver unrivaled subscriber experiences everywhere and elevate life for all in your community. Calix SmartHome™ gives your subscribers the tools to enhance, operate and secure their connected lifestyle through a growing portfolio of managed services. Your subscribers SmartLife does not end at the front door. Re-imagine community Wi-Fi as a ubiquitous, secure, managed experience across your service area by making your town a SmartTown®. With SmartMDU™ properties managers expect more than business-as-usual broadband, as the multi-dwelling unit (MDU) market experiences rapid growth of new multifamily housing properties, driven by economic growth, changing demographics, and evolving lifestyles. SmartBiz™ meets the needs of the small business with an all-in-one managed service that increases staff productivity, secures critical business systems, and drives customer loyalty. Enable your small business customers to maximize their productivity and drive customer engagement.



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 mapping
- 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
- 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, Airtime fairness
- Dynamic Mesh: load balancing, band/node steering; interference management
- Self-Healing: backhaul failover; diagnostics; events

Voice:

- General: SIP, H.248 and MGCP
- RENs per unit: 10 maximum
- Drop length: Maximum 1000 feet (305 m) using 26 AWG wire
- DS0 Output: 25 mA
- Ring Voltage: 56–84 VAC

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
- MAP-T

IPTV, IGMPv2, future support of IGMPv3:

- IGMP Snooping and Proxy
- IGMP Fast Leaves

Gateway Management:

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

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)

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)

Interfaces

- WAN: SFP+ cage (with options for GPON, 1 GBT, 10 GBT, XGS, and Active Ethernet)
- LAN Data/IPTV: Four (4) 10/100/1000 BASE-T Ethernet ports, RJ 45 connectors
- Voice: Two (2) ports
- USB: USB 2.0 Type A
- WPS: WPS push button
- 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

Wireless

- 2.4 GHz 802.11 b/g/n/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
- 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, 802.1p, 802.1Q
- Wi-Fi Alliance Certified 802.11ax



- USB-IF Compliance USB 2.0



Powering and Alarms

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

ORDERING INFORMATION

Product Number	Description
System	
100-05603	u6x GS4227 SFP+ cage, 4 GE LAN, 2 POTS, Dual Wi-Fi – AM Power Adapter
System Bundles	
000-01201	u6x GS4227 Package : SFP+, 4 GE LAN, 2 POTS, Dual Wi-Fi – AM Power Adapter (w/GPON SFP)
000-01202	u6x GS4227 Package : SFP+, 4 GE LAN, 2 POTS, Dual Wi-Fi – AM Power Adapter (w/XGS SFP+)
000-01207	u6x GS4227 Package : SFP+, 4 GE LAN, 2 POTS, Dual Wi-Fi – AM Power Adapter (w/GE AE 20km SFP+)
Mounting Brackets	
100-05467	Fits u6x (GS4227) system : Gray - Quantity 10
Power Adapter	
100-05484	AM Power Adapter, GigaSpire u6x, 12 V, 3 A - AM Type A
Branding Plate	
100-05522	Blank, removable branding plate
Uninterruptable Power Supply (UPS) and UPS Cords	
100-04068	Indoor UPS (8-hour support), Wall Mount or Desktop, 12 V, 7.2 AH, 36 W, Black - AM, Type B, Grounded
100-05345	Indoor UPS (24-hour support), Wall Mount or Desktop, 12 V, 20AH, 75W, Audible Alarm, Regulated Output R3 Production
100-03893	Indoor UPS Power cord, 7-pin UPS to 8-pin ONT Male, 1m, black
100-03894	Indoor UPS Power cord, 7-pin UPS to 8-pin ONT Male, 3m, black
100-03895	Indoor UPS Power cord, Unterminated to 8-pin ONT Male, 6m, black

SFP/SFP+ Modules

100-05609	GPON ONT SFP Module for GigaSpire GPON Access Module
100-05620	1GE BIDI SFP, GigaSpire Active Ethernet transceiver, 20Km, Tx1310nm, SC/APC, I-Temp
100-05622	10GE/2.5G only SFP+, UTP Copper, ESD Level 3, RJ-45, 20m, 0°C to 85°C
100-05654	1GE BIDI SFP, GigaSpire Active Ethernet transceiver, 60km, Tx1310nm, SC/APC, I-Temp
100-05721	10GE BIDI SFP+, Single Mode single fiber Upstream transceiver, 20Km, 1330nm, SC/APC, I-Temp
100-05722	10GE BIDI SFP+, Single Mode single fiber Upstream transceiver, 60Km, 1330nm, SC/APC, I-Temp
100-05949	I-temp GPON ONT SFP Module for GigaSpire GPON Access Module (Required for PON Distance >20km)
100-05950	I-temp XGS ONT SFP+ Module for GigaSpire XGS Access Module

Note: Calix believes the information in this publication to be accurate as of publication date and is not responsible for errors. Product Specifications are subject to change without notice.