BEC 6600AEL R24
Gigabit LTE Multi-Service Router

BEC TECHNOLOGIES

Gigabit LTE Multi-Service Router

Ideal Use Cases

- **Fixed Wireless Broadband**
- **Enterprise/Branch Office**
- **Business Continuity/Failover**
- **Home and SOHO Environments**
- **Retail Networks**
- **Managed Services**

The BEC 6600AEL R24 is featuring a Dual-WAN interface (Gigabit LTE and GigaConnect® Ethernet WAN), 4-port Gigabit Ethernet Switch delivery, USB 2.0, dual radio 4x4 802.11 access point with multi-user MIMO, Wi-Fi Hotspot, dynamic routings, and a robust Firewall security. This device offers the next generation cellular standard, CAT 18 Gigabit LTE delivering peak data rates of 1.2 Gbps downlink and 150 Mbps uplink, making it fastest commercially available outdoor router today. Service providers now have a cost-effective, scalable platform to meet the ever-increasing demand for higher bandwidth.

Cellular Network and Fixed Broadband Services Ready

BEC 6600AEL R24 provides gigabit LTE and gigabit wired Ethernet WAN interfaces and is featuring an auto-failover to ensure maximum Internet accessibility with minimum service interruption. This seamless automatic failover with traffic prioritization in the event of an Internet connectivity failure of the primary WAN interface, traffic is automatically redirected to the secondary WAN interface within seconds. This functionality operates regardless of whether the primary connection is gigabit LTE or a wired connection.

Advanced Quality of Service (QoS) Framework

BEC 6600AEL R24 supports a QoS framework based on the EPS bearer model. Default bearers are supported for best effort services and multiple dedicated bearers, GBR (guaranteed bit rate) resource types and QoS class of identifiers (QCI) are supported for real-time voice and video applications that require dedicated network resources. BEC's comprehensive QoS capabilities, leverage IP QoS concepts and standards such as DiffServ along with the LTE QoS framework to achieve the best QoE (Quality of Experience) for each subscriber.

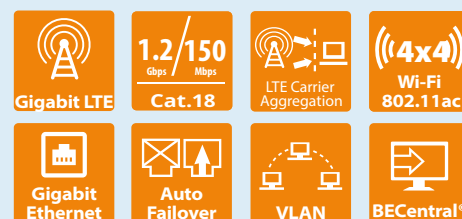## Exceeding Wi-Fi Expectations and Ease-of-Use Captive Portal

Upgrade to the next generation Wi-Fi, 802.11ac, and experience the ultra-fast dual-band speed of 1700Mbps in 5GHz range and 600Mbps 2.4GHz with backward compatibility with existing 802.11b, 11g, 11n, and 11a equipment in the WLAN network. The multi-user, multiple-input, multiple-output technology, as known as MU-MIMO, is capable of communicating with multiple devices at the same without slowing down instead providing better network efficiency and traffic capacity. The Wi-Fi hotspot is also available to share the Internet connection via mobile or a wired connection, an existing FTTH, cable, DSL network or modem, with any wireless-enabled devices which is completed separate from the private Wi-Fi network. The captive portal enables highly secure connectivity with multiple authentication options and extensive controls for access and bandwidth management.

24/7 Cloud Management and Network Visibility

Remote monitoring, management, and control of devices in real-time is essential for IoT networking devices, M2M and critical applications. BECentral®, BEC's Cloud Based Remote Management, is a comprehensive device management platform designed to minimize deployment, lower support expenses, and maximize the operational efficiency and profitability of the operator. BECentral® provides access to critical information for LTE Network diagnostics and troubleshooting, such as: signal quality measurements (RSSI, RSRP, RSRQ and SINR), network status/APN, location ID and Cell ID. Additional functionality includes OTA firmware upgrades (individual or batch), multi-user account management, local network configuration settings on the BEC 6600AEL R24.

Gigabit LTE	1.2 Gbps / 150 Mbps Cat.18	LTE Carrier Aggregation	4x4 Wi-Fi 802.11ac
Gigabit Ethernet	Auto Failover	VLAN	BECentral®

High Performance and Network Resilience

- 3GPP Release 12, LTE-A Category 18, with Carrier Aggregation, data rates of up to 1.2Gbps (DL) /150Mbps (UL)
- 5 x CA, 256QAM, up to 4x4 MIMO
- Offer Gigabit LTE broadband connectivity
- Automatic Failover and dual WAN interfaces for network resilience and reliable connectivity
- 4-Port Gigabit Auto-MDI/MDI-X Switch
- Advanced SX Antenna Technology for increased coverage, signal reception and efficiency
- LTE Multi-Service APN Selection and Management

Enterprise Class Routing and Secured VPN

- BGP and OSPF Dynamic Routing Protocols
- IPSec, GRE, L2TP, PPTP, and OpenVPN
- Advanced secure and simultaneous VPN connections

Superior Wireless Technology

- Support 4x4 4SS 11ac Wave2 MU-MIMO
- Simultaneous Dual Band Wi-Fi with high-power design
- Wi-Fi Hotspot with Captive Portal
- Supports Wi-Fi Multimedia (WMM) wireless QoS
- Carrier-Grade Wi-Fi, WPA2/AES and MSSID with isolation
- Multiple Operation Modes: Access Point, Bridge and Repeater

Management

- Web-based GUI for remote and local management
- SNMP v1 , v2, v3, MIB-I and MIB-II support
- TR-069 remote management
- SMS Control function for status and reboot
- Supported by BECentral®, BEC's Cloud-Based device management platform, to extend network visibility and control of devices remotely

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BEC T E C H N O L O G I E S

Application Diagram
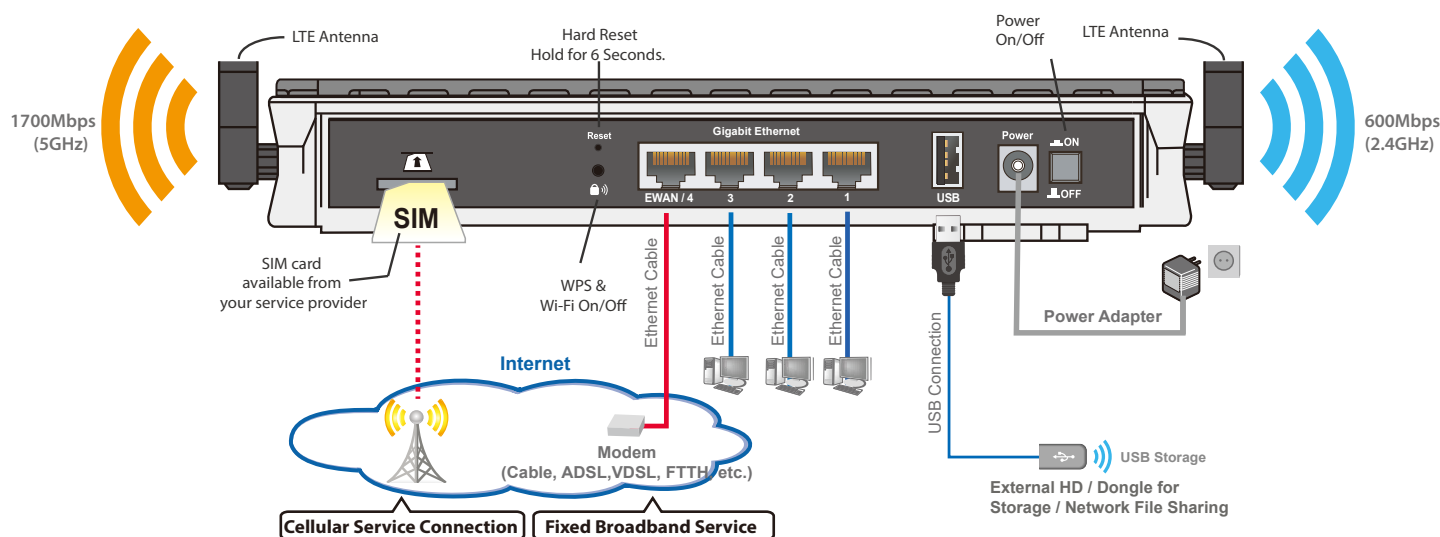
Features & Specifications

Availability and Resilience
- Dual-WAN ports (Gigabit LTE & ETH WAN)
- Load Balancing - Maximizing bandwidth of outbound traffic
- Auto WAN failover

Supported Frequency Bands
- Comply 3GPP Rel.12 with up to 5xCA DL & 2xCA UL
- **Support Frequency Bands (FDD & TDD) (Cat.18)**
  : Uplink (UL) & Downlink (DL) in MHz
  : B2 (1850–1910 UL | 1930–1990 DL)
  : B4 (1710–1785 UL | 2110–2155 DL)
  : B5 (824–849 UL | 869–894 DL)
  : B7 (2500–2570 UL | 2620–2690 DL)
  : B12 (699–716 UL | 729–746 DL)
  : B13 (777–787 UL | 746–756 DL)
  : B14 (788–798 UL | 758–768 DL)
  : B17 (704–716 UL | 734–746 DL)
  : B25 (1850–1915 UL | 1930–1995 DL)
  : B26 (814–849 UL | 859–894 DL)
  : B29 (717–728 DL Only)
  : B30 (2305–2315 UL | 2350–2360 DL)
  : B66 (1710–1780 UL | 2110–2200 DL)
  : B71 (663–698 UL | 617–652 DL)
  : B41 (2496–2690 DL TDD)
- **Channel Bandwidth**
  1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz & 20MHz
- **RF Characteristics**
  Maximum Transmit Power: 23 ± 2dBm
  Modulation: 256QAM DL / 64QAM UL
- **LTE Antenna**
  4x4 MIMO: B2 / B4 / B7 / B25 / B66
  2x2 MIMO: All Other Bands
- Web-based GUI for Configuration and Management Center

Firewall
- Built-in NAT Firewall and Stateful Packet Inspection
- Prevents DoS attacks including Land Attack, Ping of Death, etc.
- Access Control
- IP / MAC / URL / Domain Filtering

USB Application Server
- Storage: FTP server and Samba server

Network Protocols and Features
- IPv4, IPv6, IPv4 / IPv6 dual stack
- IPv6 in IPv4 (6RD) / IPv4 in IPv6 (DS-Lite) / IPv6-464XLAT
- NAT, static routing and RIP-1/2
- Universal Plug and Play (UPnP) compliant
- Dynamic Domain Name System (DDNS)
- Virtual server and DMZ
- SNTP, DNS relay, IGMP proxy and IGMP snooping, MLD proxy and MLD snooping for video service
- Supports port-based Virtual LAN (VLAN)

Quality of Service Control
- Traffic prioritization based-on IP protocol, port number, and IP address
- Uplink and Downlink Bandwidth Control

Carrier Grade Wireless LAN
- Compliant with IEEE 802.11 a/b/g/n/ac standards
- 802.11n 2.4GHz 3x3 & 802.11ac 5GHz 4x4 Wave2
- 5, 10, 20, 40, 80, 80+80, 160MHz Channel Bandwidth
- Up to 600Mbps (2.4GHz) & 1700Mbps (5GHz) speed
- 64/128 bits WEP supported for encryption
- Wireless security with WPA-PSK, WPA2-PSK, Mixed WPA/WAP2-PSK, (TKIP/AES), 802.1x/Radius
- AP, Client Bridge and WDS Operational Modes
- Multiple SSID (4 SSIDs), BSSID, Band
- Wireless MAC filtering, Wireless Client Isolation
- Wi-Fi Hotspot with Captive Portal
- Dynamic, Wi-Fi client rate-limiting
- Supports up to 4 Spatial Streams & TX Beamforming
- Supports Hardware-based Airtime Fairness (QoS)

USB Application Server
- Storage: FTP server and Samba server

VPN/Tunneling (Optional)
- IPSec, OpenVPN, PPTP, L2TP VPN Tunneling
- GRE (up to 8 tunnels)
- Embedded PPTP / L2TP / IPSec / OpenVPN Client and Server
- IKE Key Management
- MPPE Encryption for PPTP
- IPSec DES, 3DES and AES encryption

Management
- Quick Installation Wizard
- Web-based GUI for remote and local management
- Firmware upgrade and configuration data upload and download via web-based GUI and over-the-air
- Supports DHCP server/client/relay
- TR-069 supports remote management
- BECentral® Cloud Management
- SNMP v1 , v2, v3, MIB-I and MIB-II support
- Syslog monitoring
- SMS Control function for status and reboot

Hardware Specifications
Physical Interface
- LTE: (4) SMA female connectors
- Wi-Fi
  (2) External female RP-SMA connectors
  (2) Internal antennas
- Power On/Off button
- Power Jack
- USB 2.0 : (1) port
- Ethernet LAN: 4-port 10/100/1000Mbps auto-crossover (MDI/ MDI-X) switch
  - 1 x Versatile Port (LAN#4 / WAN)
- SIM Card Slot (2FF)
- Reset button
- Wireless On/Off and WPS push button
- LED indicators

Physical Specifications
- Dimensions: 9.04"(W) x 6.10"(D) x 1.69"(H) (229.5 mm x 155 mm x 43 mm)

Power Requirements
- Input: 15V DC, 2.0A

Operating Environment
- Operating temperature: 32° to 104°F (0° to 40°C)
- Storage temperature: - 4° to 158°F (-20° to 70°C)
- Humidity: 20 ~ 95% non-condensing