

# ALCATEL-LUCENT OMNIACCESS 5800 ENTERPRISE SERVICES ROUTERS

The Alcatel-Lucent OmniAccess™ 5800 Enterprise Services Router (ESR) series bring together network transport and business applications into the same dual core hardware platform. They combine a high-performance router with a standards-based, secure applications server.

For operating offices and branches, connectivity to the network is essential. Given that many applications and data are “in the cloud,” the router is vital for day-to-day operations. Therefore resources for maintenance and management of the router must be available.



The OmniAccess 5800 ESR can simultaneously operate as a router and server with its powerful internal dual core architecture. It can provide a server for files, printers, or scanners; IP telephony; energy management; an LDAP backup server; document management – just to name a few generic examples. Additionally, as it is based on accepted international standards, any application based on the Linux® operating system can be easily and quickly migrated, making the OmniAccess 5800 series an integrated solution that reduces dedicated server maintenance costs. But the OmniAccess 5800 ESR is also a professional router with advanced features and routing capacity superior to 100 Mb/s. It has a full operating system in addition to LAN and WAN connectivity capabilities.

| BENEFITS   | FEATURES   |
|--|--|
| Versatility of being both a router and applications server | The OmniAccess 5800 consists of advanced hardware architecture with a double core processor and two different operating systems: the ESR operating system and a GNU/Linux Debian operating system. Both systems run in parallel, one in each core, as if they were two processors in two different machines, without compromising either performance or stability.   |
| Routing software oriented toward enterprises               | The powerful processor allows the OmniAccess5800 ESR to exceed 100 Mb/s routing bidirectional sustained flow throughput under normal operating conditions (IMIX traffic with active services). Supports routing protocols: RIP I, RIP II, OSPFv2 and BGP-4 Bidirectional Forwarding Detection (BFD) and compatible with HSRP.  |
| Advanced capabilities above and beyond standard routing    | <ul style="list-style-type: none"> <li>• Security, incorporating firewall features (Stateful firewall) and IPSec.</li> <li>• IP Telephony with Media Gateway features and IP Telephony integrated server capable of managing up to 300 telephones with SIP, H.323, Alcatel-Lucent NOE or SCCP (Skinny) protocols.</li> <li>• Quality of Service, with CBWFQ, LLQ and WRED algorithms supporting a hierarchical system with 32 different traffic classes per interface, traffic marking and profiling as well as traffic pre-classification contained in VPNs and integrating QoS with MPPP and fragmentation.</li> </ul> |
| Applications server platform                               | Server platform supports a standard GNU/Linux Debian OS over which any application can be executed. Communications from the applications server are carried out through a virtual driver connected with the router so behavior from the applications is exactly the same as a typical server with an Ethernet card.  |
| Integrated applications for the enterprise                 | <ul style="list-style-type: none"> <li>• Security for the branch office utilizing antivirus, antispam, content filtering and IDS/IPS functionality</li> <li>• WAN optimization achieved through video proxy, web cache and NAS with cloud backup</li> <li>• Voice tools including IP Call detection and voice recording</li> </ul>   |
| Modularity and flexibility                                 | OmniAccess 5800 possesses unequalled versatility as a communications device. Capable of expanding to almost any configuration needed in a branch office to include a whole spectrum of Ethernet, WAN, LTE, Wi-Fi and voice interfaces  |

## DETAILED PRODUCT FEATURES

### Gigabit Ethernet interfaces

- 2 x 10/100/1000 Ethernet, RJ-45
- Electric interface complying with 10/100/1000Base-T IEEE 802.3
  - IEEE 802.3 ah (Ethernet OAM)
  - Operational up to 180 meters with category 5 cable
  - Automatic crossed detection MDI/MDIX for all operating modes
  - Auto-negotiation complying with IEEE 802.3u
- IEEE 802.1Q (VLAN)
- IEEE 802.1X
- 2 status LEDs per port

### Fast-Ethernet Switch

- 8 x 10/100 Ethernet, RJ-45
- 10/100Base-T detection
- Automatic semi-duplex/duplex negotiation
- MDI/MDI-X detection (crossover detection)
- Ethernet V2/IEEE 802.3
- LLC (IEEE 802.2), ARP
- IEEE 802.1Q (VLAN) up to 16 VLANs
- Managed switch:
  - EtherLike-MIB (RFC 2665)
  - SNMP-REPEATER-MIB (RFC 2108)
  - MAU-MIB (RFC 2668)
- 2 status LEDs and activity per port

### WLAN-specific features

- IEEE 802.11 a/b/g/n modes
- Manual or automatic channel selection
- Selectable power transmission
- Manual or automatic speed selection
- IEEE 802.11i, WPA, WPA2
- EAP, EAPOL
- Authentication (open, shared, WPA)
- Encryption (AES, TKIP, WEP)
- ESSID
- MAC filtering
- Quality of Service (QoS) AIFS, CWmin, CWmax

### Wireless WAN (3G) accessory

- Passive interface failure detection (analyzing received traffic)
- Active interface failure detection (poll)
- Advanced RF interface monitoring

### USB interface

- USB 2.0 host interface
- Cellular features:
  - Passive interface down detection (analysis of received traffic)

- Active interface down detection (poll)
- Automatic handover

### Console

- TIA/EIA-232 at 9600 b/s (max. 115,200 b/s)
- 8 bits without parity and one stop bit (8N1)

### Protocols and functionalities

#### IPv4

- IP, ARP, Proxy ARP
- Static IP Routing
- RIP I, RIP II, OSPFv2 and BGP-4
- Bidirectional Forwarding Detection (BFD)
- Compatible with HSRP
- RFC 2281 Virtual Router Redundancy Protocol (VRRP)
- Policy routing
- Multi-VRF
- Quality of backup: Routing based on network quality measurements
- Multi-path per IP packet (with static and dynamic routing)
- Weighted balancing per TCP/IP session
- Multicast: IGMP, IGMP-proxy, MOSPF
- DHCP client, server and relay
- NTP Client
- DNS client and proxy
- DNS cache
- DNS dynamic updating (RFC 2136)
- DynDNS Client
- NAT/PAT/Port Mapping/NAT exceptions
- PAT firewalling
- Multiple addresses per interface
- Loopback interfaces

#### IPv6

- IPv6 Core/Routing
- Dual Stack IPv4/IPv6 (DS-Lite)
- Address autoconfiguration
- Multicast MLD/MLDv2
- IPv4 to IPv6 transition mechanisms (RFC 4213)
- IPv6 over IPv4/IPv4 over IPv6 tunnels
- ACLs and firewall
- IPv6 ,management (CLI, Telnet, FTP, ping, traceroute, etc.)

#### PPP

- PPP (RFC 1661), PAP/CHAP, IPCP
- Dynamic assignment of IP addresses (own or peer)
- PPP Multilink
- Multi-Class Extension to Multi-Link PPP (RFC 2686)

#### PPPoE

- PPPoE over Ethernet and over ATM
- PPPoE Bridge + routing (PPPoE pass-through)
- PPP Multilink over PPPoE
- Re-negotiation based on PADT

#### ATM

- SAR AAL5
- PVCs: 31 and SVCs
- VPIs and VCIs range: Complete
- Dynamic creation and destruction of PVCs
- Traffic Shaping: CBR, UBR, VBR-nrt, VBR-rt
- OAM F4/F5

#### Encapsulation over ATM

- Routed IP RFC 1483 LLC and VC-based
- PPPoA RFC 2364 LLC and VC-based
- PPPoE RFC 2516 LLC and VC-based
- Classical IP over ATM (RFC 2225)
- Ethernet Bridged RFC 1483 LLC and VC-based
- Frame Relay over ATM: FRF.5 and FRF.8

#### Quality of Service (QoS)

- Packet labeling (DiffServ) depending on interface, subinterface, protocol, port, MAC and size
- Congestion control: FIFO, queuing priority, BRS proprietary system, WFQ
- Traffic limiting in queues, with overflow in lesser priority queues. Standard limitation over ATM and Frame Relay
- Fragmentation in FR (FRF.12) PPP and MPPP

#### Security and VPNs

- IPsec client and server, compatible with third-party IPsec peers
- IPsec security services: ESP and AH
- IPsec operation modes: tunnel and transport
- Encryption: RC4, DES, 3DES and AES
- Authentication: SHA-1 and MD5
- IKE Protocol
- ISAKMP Configuration Methods. Oakley groups 1, 2, 5 and 15
- NAT-Traversal
- Reverse Route Injection (RRI)
- X.509v3, LDAP and PKIX digital certificates
- SCEP Protocol
- Tunnel End-point Discovery (TED) Protocol
- IPsec PMTU Discovery
- GRE and multi-GRE. GRE RC4 encryption
- Next Hop Resolution Protocol (NHRP)
- Dynamic Multipoint IPsec VPNs (DMIVPN)

- Gateway Encryption Transport VPN (RFC 3547)
- RADIUS Access Control (RFC 2138)
- L2TP client (LAC), L2TP initiation and L2TP Server (LNS)
- L2TP/IPSec Server, compatible with Microsoft clients
- Telnet, SSH and FTP console access user and password protected
- User and permission levels
- Advanced IP filters
- Firewall functions
  - Static and dynamic access controls (Stateful Packet Inspection)
  - Intrusion detection and DoS

#### **Data compression**

- Compression in X.25 and PPP
- IPHC Compression
- Van Jacobson and STA LZS compression

#### **IBM-SNA support**

- SDLC-QLLC-LLC2 Conversions
- SNA over IP:
- DLSw (RFC 1795) and remote IP Bridge (tunnel)
- SNA over Frame Relay (RFC 1490):
- BAN and remote Bridge Frame Relay
- SNA over X.25 (X.25-QLLCB)

#### **Bridging**

- Bridge over PPP (BCP), HDLC, Frame Relay with GRE.
- Spanning Tree Protocol (STP) (IEEE 802.1d)
- Rapid Spanning Tree Protocol (RSTP) (IEEE 802.1w)
- Multiple bridge domains
- Simultaneous bridging and routing
- Class of Service (CoS) (IEEE 802.1p)

- Per VLAN Spanning Tree Protocol (PVST)
- Source Routing, MAC filtering and NetBIOS

#### **Telephony over IP (ToIP)**

- Signaling:
- SIP: RFC 3261, RFC 3262, RFC 3264, RFC 3265
- SIP transport over UDP, TCP and TLS
- X.509 authentication over TLS
- SIP SDP: RFC 2327
- SIP SDES: RFC 4568
- H.323, H.245, H.225
- RAS
- UA-NOE (Alcatel-Lucent) (server function)
- SCCP (skinny) (server function)
- SIP and H.323 modified AASTRA (server function)
- Simultaneous telephone survival for SIP/H.323/SCCP/UA-NOE/SIP (AASTRA)/H.323(ASTRA) terminals
- Encryption
- G.711 (A-law and mu law)
- G.729 (a and b)
- G.723.1 (5.3 kb and 6.4 kb)
- T.38

#### **PBX features**

- Attended and blind transfers
- Multiple terminal simultaneous ringing
- Hunt group
- Call groups
- Overflow
- Call forwarding if busy, no answer or unconditional
- Music on hold, streaming mode from file
- Configurable microphone, loud speakers, echo and tone levels
- RTP, RTCP, SRTP

- Data fragmentation FRF.12
- Header compression CRTP
- Silence suppression (VAD)
- Various voice packets per data frame
- CODED classes per destination
- Direct dialing
- Numerical expansion and compression

#### **X.25 Switch**

- Programmable routing
- X.25 call parameter modification
- X.25 over TCP/IP: XOT (RFC 1613)

#### **Management**

- Command line interface (CLI) on console, Telnet and Secure Shell (SSH)
- Access/execution user levels (local authentication or RADIUS)
- SNMPv3: MIB-2, Alcatel-Lucent Private MIB
- Event Logging System
- Network/link quality guarantee agent (feature similar to SAA)
- Netflow V5 and V9
- Syslog Client
- NTP Protocol
- DynDNS Client
- FTP and TFTP software, BIOS and configuration updating
- Integrated protocol analyzer compatible with Ethereal/Wireshark
- Default configuration switch
- Partial support of Cisco Discovery Protocol (CDP)
- RADIUS Accounting (RFC 2139)
- To be integrated in Alcatel-Lucent OmniVista™ 2500 Network Management System 3.5.6

## TECHNICAL SPECIFICATIONS

**Table 1. Product matrix**

| PRODUCT MATRIX        | OA5840                       | OA5850                       |
|-----------------------|------------------------------|------------------------------|
| Integrated GigE ports | 2                            | 2                            |
| Wi-Fi option          | Yes                          | Yes                          |
| LTE accessory         | Yes                          | Yes                          |
| DSL-specific slot     | 1                            | 1                            |
| Multipurpose slots    | 1                            | 2                            |
| Hard disk option      | No                           | Yes (250 GB)                 |
| Processor             | Dual Core 800 MHz            | Dual Core 800 MHz            |
| Flash                 | 64 MB                        | 64 MB                        |
| RAM                   | 512 MB                       | 512 MB                       |
| Console               | 1                            | 1                            |
| Power consumption**   | 181 W                        | 242 W                        |
| Heat dissipation      | 618 BTU/h                    | 825 BTU/h                    |
| Width                 | 44 cm (17.32 in)             | 44 cm (17.32 in)             |
| Depth                 | 37.8 cm (13.70 in)           | 37.8 cm (13.70 in)           |
| Height                | 4.3 cm (1.85 in)             | 4.3 cm (1.85 in)             |
| Approximate weight    | 4.5 kg (9.92 lb)             | 4.5 kg (9.92 lb)             |
| Operating temperature | 0°C to 45°C (32°F to 113°F)  | 0°C to 45°C (32°F to 113°F)  |
| Storage temperature   | 10°C to 70°C (14°F to 158°F) | 10°C to 70°C (14°F to 158°F) |
| Humidity (operating)  | 5% to 80% non-condensing     | 5% to 80% non-condensing     |
| Humidity (storage)    | 5% to 90% non-condensing     | 5% to 90% non-condensing     |

\*\* Maximum power consumption under full traffic load

**Table 2. Expansion Module Matrix**

| WAN MODULES      | OA5840 | OA5850 |
|------------------|--------|--------|
| VDSL2            | Yes    | Yes    |
| ADSL2            | Yes    | Yes    |
| G.SHDSL (2-port) | Yes    | Yes    |
| Serial           | Yes    | Yes    |
| 2 BRI (Data)     | Yes    | Yes    |
| 2 BRI (Voice)    | Yes    | Yes    |
| 1 port SFP       | Yes    | Yes    |
| 4 FXS/FXO        | Yes    | Yes    |
| 2 E&M            | Yes    | Yes    |
| *4 E1/T1         | No     | Yes    |
| *3-port serial   | No     | Yes    |
| *2-port SFP      | No     | Yes    |

\* High-density boards only operate with the OmniAccess 5850

**Table 3. OmniSwitch 5800 ordering information**

| PRODUCT                  | FEATURE  |
|--------------------------|--|
| OA5840-xx                | OA5840 ESR modular chassis base model has 2 x GigE WAN, 8 x GigE LAN, 1 x DSL slot, 1 x AIC slot. HW ready for 802.11bgn (activated by license). Use external WWAN enabler for LTE/3G backup interface. See SW licenses available. See part number suffix for power cord plug type.* |
| OA5850-xx                | OA5850 ESR modular chassis base model has 2 x GigE WAN, 8 x GigE LAN, 1 DSL slot, 2 x AIC slots. HW ready for 802.11bgn (act by license). Use external WWAN enabler for LTE/3G backup interface. See SW licenses available. See part number suffix for power cord plug type.*        |
| OA5850D-xx               | OA5850 ESR modular chassis with 250 GB HD memory storage for applications. See base model for ports. HW ready for 802.11bgn (act by license). Use external WWAN enabler for LTE/3G backup interface. See SW licenses available. See part number suffix for power cord plug type.*    |
| <b>MODULES</b>           |  |
| ESR-DSL-ADSL             | ADSL2+/ADSL2 card for OA ESR modular routers   |
| ESR-DSL-VDSL             | VDSL2/VDSL card for OA ESR modular routers   |
| ESR-AIC-2SHDSL           | G.SHDSL 2-pair card for OA ESR modular routers   |
| ESR-AIC-3SS              | 3-port Sync Serial card for OA ESR modular routers   |
| ESR-AIC-1E1T1            | 1-port E1/T1 card for OA ESR modular routers   |
| ESR-AIC-4FXSFXO          | 4-port FXS/FXO card for OA ESR modular routers includes DSPs   |
| ESR-AIC-2BRI             | 2-port BRI card for OA ESR modular routers includes DSPs   |
| ESR-AIC-1PRI             | 1-port PRI card for OA ESR modular routers includes DSPs. Supported on OA5850 ESR and higher   |
| ESR-AIC-2EM              | 2-port E&M card for OA ESR modular routers, includes DSPs  |
| ESR-AIC-1SFP             | 1-port GigE SFP card for OA ESR modular routers  |
| ESR-AIC-1SS              | 1-port Sync Serial card for OA ESR modular routers   |
| ESR-AIC-2SFP             | 2-port GigE SFP card for OA ESR modular routers. Supported on OA5850 ESR   |
| ESR-AIC-4E1T1            | 4-port E1/T1 card for OA ESR modular routers   |
| ESR-AIC-2B-ST            | 2-port ISDN BRI-S/T data only card for OA ESR modular routers  |
| ESR-AIC-2AM              | 2-port Analog modem for OA ESR modular routers   |
| <b>EXTERNAL ENABLERS</b> |  |
| ESR-WWAN-4V              | LTE Enabler Verizon (LTE B13, global fallback to CDMA and HSPA+/UMTS)  |
| ESR-WWAN-4A              | LTE Enabler AT&T, NA and others (LTE AWS and B17, global fallback to HSPA+/UMTS)   |
| ESR-WWAN-4G              | LTE Enabler for Global (LTE at 800/900/1800/2100/2600 MHz, fallback to HSPA+/UMTS)   |
| ESR-WWAN-H+              | 3G Enabler (3.7G) for Worldwide (HSPA+ at 850/900/1900/2100 MHz, fallback to EDGE/GPRS)  |
| <b>SOFTWARE</b>          |  |
| OA5840-WLAN-SL           | WLAN 802.11bgn AP activation license for OmniAccess 5840 ESR   |
| OA5840-TOIP-SL           | Telephony services activation license for OmniAccess 5840 ESR  |
| OA5840-SEC-SL            | Security services activation license for OmniAccess 5840 ESR   |
| OA5840-SNA-SL            | Data services activation license for OmniAccess 5840 ESR   |
| OA5850-WLAN-SL           | WLAN 802.11bgn AP activation license for OmniAccess 5850 ESR   |
| OA5850-TOIP-SL           | Telephony services activation license for OmniAccess 5850 ESR  |
| OA5850-SEC-SL            | Security services activation license for OmniAccess 5850 ESR   |
| OA5850-SNA-SL            | Data services activation license for OmniAccess 5850 ESR   |
| <b>APPLICATIONS</b>      |  |
| OA5850-AV-SL             | Antivirus application license for OmniAccess 5850 ESR  |
| OA5850-FS-SL             | File Server application license for OmniAccess 5850 ESR  |
| OA5850-IDS-SL            | IDS application license for OmniAccess 5850 ESR  |
| OA5850-NT-SL             | NTOP application license for OmniAccess 5850 ESR   |
| OA5850-VP-SL             | Video Proxy application license for OmniAccess 5850 ESR  |
| OA5850-WC-SL             | Web Cache application license for OmniAccess 5850 ESR  |

\*Note rack mount kit not included. Please refer to accessories section of World Wide Price List.

### Warranty

Standard Hardware warranty