

Albeego-Pinion

The Albeego-Pinion is a compact, next generation smart bonded edge appliance that provides a powerful edge application computer platform.



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01/07

Bonded Edge Computing



The Albeego-Pinion is a compact, next generation smart bonded edge appliance that provides a powerful edge application computer platform. With the added advantage of instantly available, fast, stable, and secure broadband connectivity to the cloud or core.

Specifically designed to be a powerful bonded edge appliance, the compact and powerful router can be desk or wall mounted with power via USB C or PoE. The Albeego-Pinion can also be vehicle mounted, easily integrating with the vehicle's ignition system, providing permanent vehicle edge computer and bonded broadband connectivity.

The Albeego-Pinion bonds multiple 3G, 4G, LTE or 5G connections together to form a broadband connection when static or on the move. Bonding at layer 3 allows QoS and traffic shaping to be applied across the bonded group.

Designed for simple, rapid deployment, Albeego-Pinion is a self-optimising system requiring no user configuration or training. It uses the latest in IPsec VPN technology to enable highly encrypted bonding at layer 3 and incorporates patented active counter cyber and connection optimisation features.

Designed to actively auto optimise how it connects to the local mobile networks to maximise connected performance. The system also protects user anonymity using multiple obfuscation features. Providing an instantly available and powerful edge computer platform or a simple but secure branch office extension, the Albeego-Pinion is ideal for fast, non-planned and simple deployment.



Key Features

- 4G/LTE/5G connectivity, seamlessly switching between networks as availability dictates
- Enables QoS and traffic shaping to be applied across the bonded group.
- Works on the move by dynamically managing its on-board mobile network connections
- Zero touch system with no training required enabling quick and simple deployment.
- Identifies, avoids, counters and reports cyber attacks
- Hardware agnostic, open interfaces, evergreen technology to avoid vendor lock-in and technology obsolescence

Special Features

- Provided as a fully supported and managed service
- Zero touch operation, switch on and connect
- Over the Air (OtA) SIM provisioning for local
- Incorporating BeeSIM, a fully managed roaming SIM service
- Powerful edge appliance capable of running multiple VM based IoT or industrial edge applications

Software Features

Feature	Release A (Current)	Release B (Q2 2024)	Release C (Q4 2024)
Bonding capacity	150 Mbps	800 Mbps	800 Mbps
Layer 3 bonding client allowing QoS and traffic prioritisation	●	●	●
Online and tele Network Operations Centre access	●	●	●
Online and tele Security Operations Centre access	●	●	●
Private Cloud Network or Public Cloud integration options	●	●	●
Cloud or bare metal server configuration	●	●	●
Dynamic global exit node orchestration	●	●	●
Multi Network SIM compliant	●	●	●
Choice of radio technology and category (LTE Cat 6 standard)	●	●	●
Up to 400 Mbps DL 120 Mbps UL (network dependant)	●	●	●
Ethernet, VSAT, Wi-Fi WAN bonding	●	●	●
10,200 mAh internal battery pack	●	●	●
USB C charging (phone charging)	●	●	●
Integrated UPS	●	●	●
BeeSIM - eSIM/eUICC Over the Air roaming option	×	●	●
BeeSIM - Agile SIM technology	×	●	●
Mobile network intelligence enabled	×	●	●
Automated mobile connection optimisation	×	●	●
AlbeeSmart Cloud based GNI access	×	×	●
Automated DoS threat detection	×	×	●
Active counter cyber response, DoS recovery	×	×	●
Forced mobility mode	×	×	●
IMSI cycling, anonymity protection	×	×	●
Mobile network black/whitelisting	×	×	●
Dynamic Exit Node deployment	×	×	●

Hardware Technical Specifications 0.1

System Core

Processor	Intel® Apollo Lake Processor Intel® Atom® x7-E3950
Graphics	Integrated Intel® HD graphics 505
Memory	Up to 8GB DDR3L-1866 (SODIMM slot)

Panel I/O Interface

Ethernet	1 x Gigabit Ethernet port by Intel® I210 GbE Controller
PoE Switch	Integrated IEEE 802.3at 4 Port PoE Switch total power consumption 60W max
Video Port	VGA and DVI dual display outputs via DVI-I
USB 3.1	2 x USB 3.1 ports
Isolated DIO	4 x Isolated DI and 4 x Isolated DO
Rear Panel I/O	DC-In power x 1, SIM 1, SIM 2
Front I/O Panel	Power Button x 1 Reset Button x 1 Power/HDD LED x 2 USB 3.0 x 2 GbE port (RJ-45) x 1 PoE LAN x 4 (IEEE 802.3 at/af) HDMI x 1, SIM 3
Non LTE GPS	Built-in GPS & G Sensor

Storage Interface

mSATA	1 x Half size mSATA Port & 1 x Full size mSATA Port
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Power Supply

DC input	DC 12-24V DC 9-36V with power ignition (optional)
Input Connector	3-pin pluggable terminal block for DC input (IGN/GND/V+)
Optional	DC Jack with mains adapter
Charging	USB C charging using phone/tablet charging cable or Ethernet via PoE

Hardware Technical Specifications 0.2

Physical

Dimensions	160mm (L) x 134mm (W) x 62mm (H)
Weight	1.8kg
Mounting	Horizontal or vertical, wall mount, vehicle mount

Environmental

Operating temperature	-20°C to 70°C
Storage temperature	-40°C to 85°C
Humidity	10% to 80% , non-condensing
Mil Standard	MIL-STD-810G
Vibration	Operating, 5 Grms, 5-500 Hz, 3 Axes (w/ mSATA, according to IEC60068-2-64)
Shock	Operating, 50 Grms, Half-sine 11 ms Duration (w/ mSATA, according to IEC60068-2-27)
EMC	CE/ FCC Class A, according to EN 55032 & EN 55024

Internal I/O Interfaces

M.2	1 x M.2 B key socket for 3G/ 4G option with USIM support
Mini-PCIe	3 x full-size mini PCI Express sockets with USIM support

3G/4G/LTE/LTE(A) Radio Systems

Options	Default option is 4G/LTE Cat 6, higher 5G and lower 4G/LTE Cat 4 options available
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Default Mobile Network Modem Configuration

Radios	3 x Sierra Wireless® AirPrime® EM Series 7455
Category and rates	Cat 6 – 3 x 300Mbps DL/ 50Mbps UL
4G LTE (A) frequency bands	B1-B5, B7, B12, B13, B20, B25, B26, B29, B30, B41
3G frequency bands	B1, B2, B3, B4, B5, B8
2G frequency bands	2G working inhibited due to poor 2G security
Satellite location	GPS, Glonass, Beidou, Galileo
Regulatory approvals	CE, FCC, GCF, IC, NCC, PTCRB
Carrier approvals	AT&T, Bell, Rogers, Sprint, Telus, US Cellular, Verizon, Vodafone

Hardware Technical Specifications O.3

Default Wi-Fi Access Point

Radio	Compex WLE600NX
Standards	802.11 a/b/g/n/ac Dual Band 2.4Ghz and 5Ghz
Max data rate	867Mbps

Security as per latest NCSC guideline - Prime Cryptographic Profile

Encryption	AES 256 CBC
Pseudo-random function	HMAC-SHA-256 (RFC4868)
Diffie-Hellman group	256bit random ECP (RFC5903) group 19
Authentication	ECDSA-256 with SHA256 on P-256 curve
Management	Dedicated zero tier management network