

AlbeePro-Pinion™

BONDED EDGE COMPUTING

The AlbeePro-Pinion is a compact, next generation smart bonded edge appliance that provides a powerful edge application compute 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 Pinion can also be vehicle mounted, easily integrating with the vehicle's ignition system, providing permanent vehicle edge compute and bonded broadband connectivity.

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

Designed for simple, rapid deployment, AlbeePro-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 compute platform or a simple but secure branch office extension, the AlbeePro-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
- Zero touch system with no training required enabling quick and simple deployment
- Works on the move by dynamically managing its on-board mobile network connections
- Smart power management for maximum battery life and uses standard, off-the-shelf USB C charging (phone charger)
- Identifies, avoids, counters, and reports cyber threats and attacks
- Hardware agnostic, open interfaces, evergreen technology to avoid vendor lock-in and technology obsolescence



AlbeePro-Pinion Bonded Edge Appliance

SPECIAL FEATURES

- Provided as a fully supported and managed service
- Zero touch operation, switch on and connect
- Incorporating BeeSIM, a fully managed roaming SIM service
- Over the Air (Ota) SIM provisioning for local IMSI operation
- Powerful edge appliance capable of running multiple VM based edge applications
- On board battery for tetherless operation



Branch Office Applications



Home Network



In-Vehicle Connected Mobility



IoT Gateway



Temporary Site Office Applications



Transport Applications

SOFTWARE FEATURES

FEATURES	RELEASE A	RELEASE B	RELEASE C
Bonding capacity	150Mbps	800Mbps	800Mbps
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

SYSTEM CORE

System on a chip (SOC)	Quad Core Intel Atom® E3900 Series Processor
Memory	4GB (standard) Up to 8GB DDR3L on request
Storage capacity	64 GB eMMC (standard) up to 4TB on request

I/O INTERFACE

Ethernet	2x GB Ethernet (full speed) RJ-45. (standard), additional integrated 4 port PoE switch available on request
RTC	Yes
Camera interface	CSI (4 mega pixel) (internal)
USB 3.1	2 x UB3.0
USB 2.1 (internal)	1 x UB2.0
Video and AV	HDMI 1.4b I2S audio port (internal)
Graphics	Intel® HD 400 graphics ,12 EU GEN 8, up to 500MHz support DX*11.1/12, open GL*4.2, open CL*1.2 OGL ES3.0, H.264, HEVC (decode), VP8
Display interface	DSI / eDP internal I/O
Expansion	12 pin general purpose bus, supported by Altera Max V. ADC 8-bit@188ksos (internal)

SOFTWARE

Operating systems	Linux (Ubilinux, Ubuntu, Yocto), SE Linux compliant
-------------------	---

POWER SUPPLY

DC input	USB C-5VDC@4A or PoE 802.1AF
Battery	Internal 3.6V, 10.2Ah with integrated charging
Certification	UN38.3 certified for safe transport
Charging	USB C charging using phone/tablet charging cable or Ethernet via PoE

PHYSICAL

Dimensions	210mm × 160mm x 43mm
Weight	1.4kg (including battery)
Mounting	Desktop, wall or vehicle fit

ENVIRONMENTAL

Operating temperature	-40°C to 85°C
Storage temperature	-40°C to 85°C
Humidity	5% to 90% RH operating, non-condensing
Certification	CE/FCC Class A, RoHS compliant Microsoft Azure certified, REACH

SIGNAL / POWER DISTRIBUTION

AlbeePinion®	AlbeePinion® 5G Bonded Edge Compute Board with integrated USB hub, UPS and charging circuits.
--------------	---

4G/LTE/LTE(A) and 5G RADIO SYSTEMS

Options	Default option is 4G/LTE Cat 6, higher 5G and lower 4G/LTE Cat 4 options available
---------	--

DEFAULT MOBILE NETWORK MODEM CONFIGURATION

Radios	3 x Quectel EP06 STANDARD, higher category LTE and 5G available on request
Category and rates	Cat 6 – 3 x 300Mbps DL/ 50Mbps UL standard
4G LTE (A) frequency bands	B1-B5, B7, B12, B13, B20, B25, B26, B29, B30, B41, 5G on request
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

DEFAULT WI-FI ACCESS POINT

Radio	MQ AX210 WiFi Module, 2.4G/5G/6G Tri Band Network card
Standards	802.11 A/B/G/N/AC/AX
Max data rate	5374Mbps

SECURITY AS PER LATEST NCSC GUIDELINES - 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



Albeego Devices and subscription to the Albeego network and Albeego's BeeSIM data service are available via Albeego Solutions or authorised resellers.

