



**DEVELOPMENT AND PRODUCTION
OF TELECOMMUNICATIONS EQUIPMENT**

**CATALOGUE OF SOLUTIONS
FOR ASTERISK**



CONTENTS

| | |
|-------------------------------|----|
| About the company..... | 3 |
| External E1 interface..... | 5 |
| TDM over IP gateway..... | 7 |
| Channels bank..... | 9 |
| Modular channels bank..... | 11 |
| Multi-channel adapter E1..... | 13 |
| Compact adapter E1..... | 15 |

About the company

Parabel LTD is an innovation company doing business in the sphere of development and production of telecommunications, industrial and built-in equipment. The company was founded in 2000 by the team of technical experts having years of experience in the Academic Town institutions in the Novosibirsk city. We develop, produce and sell high-technology products in domestic and foreign markets. Our customers are Internet services providers, integrator companies, large corporate and state entities.

Parabel LTD manufactures and sells the following main kinds of products:

- Multi-protocol routers with E1 and V.35 ports;
- Multiplex equipment and adapters that provide E1 connectivity;
- Routers for access to IKM-15 flows;
- E1 over Ethernet equipment;
- CAN-Ethernet-GPRS gateway;
- E1 adapters to build VOIP gateways, IVR, Call centers based on Asterisk/Linux;
- Equipment for industrial automation



Quality of products

We manufacture our products using the highest quality components made by the leading manufacturers of the microelectronic industry.

If You open the cover and look at the printed-circuit board, You can see a variety of world brands - Texas Instruments, Freescale, Altera and many others.

The very printed circuit boards are ordered in Hong Kong. The components are inserted under factory conditions on automated lines. Finally, the manufactured product is subjected to premarket and thermal resistance testings.

Technical support

The detailed information on application, configuration of our products and their compatibility with third-party equipment is provided by phone as well as e-mail. Our technical specialists usually reply e-mails within a day. If users experience any problems with configuration of their telecommunications equipment, then our professionals are ready to study third-party manuals, standards and develop test programs to solve them. We don't leave our customers alone with the problems and try to solve all their complicated issues completely it is our rule.

External E1 interface for Asterisk ELF2-AE

External ELF2-AE interface is a device intended for input/output of E1 synchronous flows by the TDMoE protocol in IP PBX Asterisk. The interface together with Asterisk provides functions of PBX, IP PBX, E1 cross-connect, E1 access point and much more. Hard connection of ELF2-AE to the Asterisk server is done by the Ethernet interface.

Key features

- Master/slave E1 modes
- Support for CAS, CCS main telephony signaling, Ss7 as well
- Several interfaces can be connected to a single server
- Interface hot swap, without server interruption
- Rack mount variant
- Support by the standard DAHDI packets



Hardware versions

| | |
|----------------|---|
| ELF2-AE | 1 E1 port, Ethernet port, desktop |
| ELF2-AE-EC | 1 E1 port, Ethernet port, echo cancellation, desktop |
| ELF2-AE-1U | 1 E1 port, Ethernet port, rack mount |
| ELF2-AE2-1U | 2 E1 ports, 2 Ethernet ports, rack mount |
| ELF2-AE-EC-1U | 1 E1 port, Ethernet port, echo cancellation, rack mount |
| ELF2-AE2-EC-1U | 2 E1 ports, 2 Ethernet ports, echo cancellation, rack mount |

TDM over IP gateway ELF2-PP (E1 over IP)

ELF2-PP is intended for creation of virtual E1 channel in the data packet networks. The device offers the possibility to organize multiservice networks (voice+data) on the Ethernet infrastructure basis. This solution being more suitable in some cases, considerably simplifies telephone channel setup and operation as compared to VoIP.

The operational requirements for ELF2-PP are:

- Availability of the broadband link with “twisted pair” Ethernet interfaces
- QOS support for Ethernet switching if voice and data are transmitted simultaneously
- Small round-trip delay (no more than 30 ms), otherwise external echo cancellers should be used in the E1 channel

The main features of ELF2-PP are:

- Transparency for telephone signaling protocols
- Complete recovery of E1 frame and multiframe
- Recovery of temporal characteristics of G.703 signal
- Compensation of packet delays over Ethernet infrastructure
- UDP or Ethernet packets are used for E1 data encapsulation
- Configurable size of packets and compensating buffer



Hardware versions

| | |
|--------------------|--|
| ELF2-PP | TDM over IP gateway, 1 Ethernet port, 1 E1 port, desktop |
| ELF2-PP-1U | TDM over IP gateway, 1 Ethernet port, 1 E1 port, chassis 1U rack-mountable |
| ELF2-PP2-1U | TDM over IP gateway, 2 Ethernet ports, 2 E1 ports, chassis 1U rack-mountable |

FXO, FXS, GSM channels bank for Asterisk connected through E1, Ethernet

Asteroid can be used for connection of the telephone lines and GSM channels to standard PBX or to Asterisk/Freeswitch. Connection to standard PBX is done by the E1 port. Connection to Asterisk/Freeswitch is done by the Ethernet port using the TDMoE protocol.

Key features

- Up to 30 FXS/FXO channels, up to 4 GSM channels
- Ethernet 10/100 or E1 connection
- Hardware echo cancellation
- Several banks can be connected to a single Asterisk server
- Point-to-point mode if the Asterisk server is not used



Hardware versions

| Name | FXS ports | FXO ports | GSM ports | E1 | Echo cancel |
|------------------|-----------|-----------|-----------|----|-------------|
| Asteroid-0L4S | 30 | 0 | 0 | - | - |
| Asteroid-4L0S | 0 | 30 | 0 | - | - |
| Asteroid-1L3S | 22 | 8 | 0 | - | - |
| Asteroid-0L4S-EC | 30 | 0 | 0 | - | + |
| Asteroid-4L0S-EC | 0 | 30 | 0 | - | + |
| Asteroid-1L3S-EC | 22 | 8 | 0 | - | + |
| Asteroid-0L4S-E1 | 30 | 0 | 0 | + | - |
| Asteroid-4L0S-E1 | 0 | 30 | 0 | + | - |
| Asteroid-1L3S-E1 | 22 | 8 | 0 | + | - |
| Asteroid-1G3S-EC | 23 | 0 | 2 | - | + |
| Asteroid-1GLS-EC | 16 | 7 | 2 | - | + |
| Asteroid-2G2S-EC | 16 | 0 | 4 | - | + |

Accessories

GANT-3 antenna for GSM port, 3 db, SMA

Modular channels bank for Asterisk Asteroid2-MT16

ASTEROID2-MT16 is intended for connection of telephone subscribers (lines) to IP PBX Asterisk/Freeswitch. The device allows connection of up to 128 FXS/FXO phone ports and up to 32 GSM ports. Connection to IP PBX is made by the Ethernet network interface by the TDMoE protocol. The DADDI software interface enables TDMoE support in IP PBX. Channels bank is built on a modular basis, thus providing the flexibility and efficiency of the hardware configuration.

Key features

Interfaces:

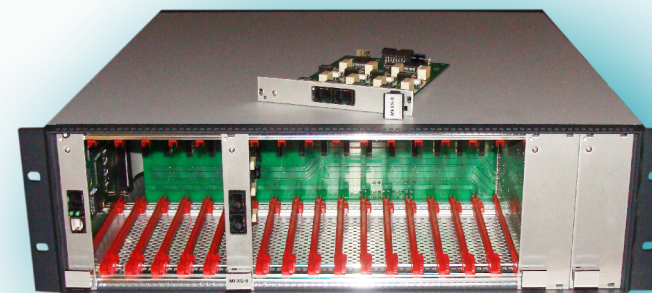
- 16 slots for FXS/FXO/GSM (128 FXO/FXS, 32 GSM) modules
- Ethernet 10/100 port 1 port
- Configuration port (USB or COM port)

Power:

- 220 V

Design:

- 3U chassis for 19" rack enclosure with external access to the FXS/FXO/GSM modules



Hardware versions

| | |
|--------------------------|--|
| ASTEROID2-MT16 | Chassis supporting 16 FXO/FXS/GSM slots, with TDMoE controller and power supply unit |
| ASTEROID2-MT16-EC | Chassis supporting 16 FXO/FXS/GSM slots, with TDMoE controller and power supply unit, with hardware echo cancellation option |
| MFXS-8 | FXS module, 8 ports |
| MF XO-8 | FXO module, 8 ports |
| MGSM-2 | GSM module, 2 ports |

Accessories

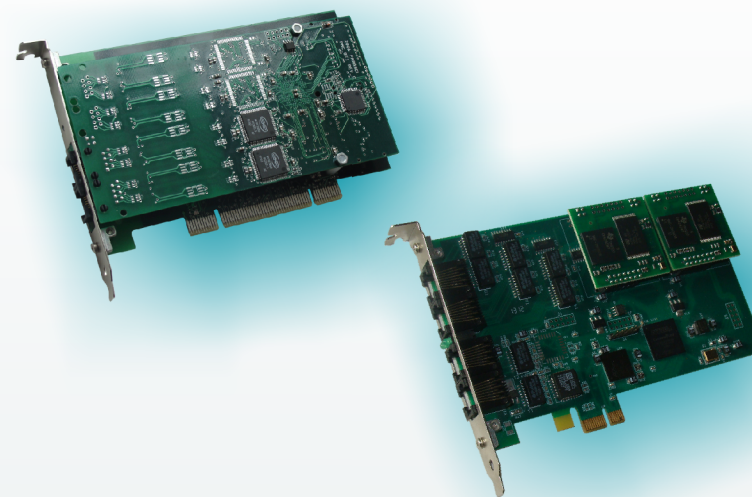
| | |
|---------------|---------------------------------|
| GANT-3 | Antenna for GSM port, 3 db, SMA |
|---------------|---------------------------------|

Multi-channel adapter E1 for Asterisk Quasar E1

The Quasar multichannel interface card is intended for connection of E1 interfaces to the servers running under Asterisk soft PBX. The adapter is configured as a computer mother board of PCI, PCI-Express or PMC format.

Key features

- Quantity of E1 channels used: 4 or 8
- Total access embedded hardware timeslots switcher E1 with 256x256 channels matrix
- DMA mode for data transfer to PC without CPU
- Automatic selection of the synchronization channel
- Automatic E1 sensitivity adjustment of the receiver (up to -40 dB)
- Hardware echo cancellation
- PCI 2.2,3V or 5V variant control bus, PCI-e



Hardware versions

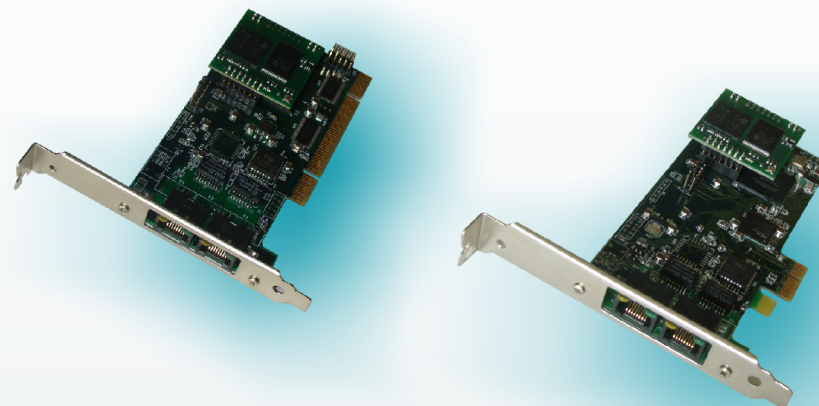
| | |
|-----------------------|---|
| Quasar-8PMC | 8 E1 ports, PMC |
| Quasar-4PMC | 4 E1 ports, PCI |
| Quasar-8PCI | 8 E1 ports, PCI |
| Quasar-4PCI | 4 E1 ports, PCI |
| Quasar-8PCX | 8 E1 ports, PCI express |
| Quasar-4PCX | 4 E1 ports, PCI express |
| Quasar-8PCX-EC | 8 E1 ports, PCI express, echo canceller |
| Quasar-4PCX-EC | 4 E1 ports, PCI express, echo canceller |
| Quasar-8PCI-EC | 8 E1 ports, PCI, echo canceller |
| Quasar-4PCI-EC | 4 E1 ports, PCI, echo canceller |

Compact adapter E1 for Asterisk Quasar-M

The Quasar-M multichannel interface card is designed for connection of E1 interfaces to the servers running under Asterisk soft PBX. The adapter is configured as a computer mother board of PCI or PCI-Express format.

Key features

- Quantity of E1 channels used: 1 or 2
- Hardware echo cancellation option
- Failover switch of ports for fail-safe systems building
- Total access embedded hardware timeslots switcher E1 with 64x64v channels matrix
- DMA mode for data transfer to PC without CPU
- Automatic E1 sensitivity adjustment of the receiver (up to -40 dB)
- Low profile PCI card is available (for 2U servers)



Hardware versions

| | |
|--------------------------|---|
| Quasar-ME | 1 E1 port, PCI |
| Quasar-MEX | 1 E1 port, PCIe |
| Quasar-MEE | 2 E1 ports, PCI |
| Quasar-MEEX | 2 E1 ports, PCIe |
| Quasar-ME-EC | 1 E1 port, PCI, echo canceller |
| Quasar-MEX-EC | 1 E1 port, PCIe, echo canceller |
| Quasar-MEE-EC | 2 E1 ports, PCI, echo canceller |
| Quasar-MEEX-EC | 2 E1 ports, PCIe, echo canceller |
| Quasar-MEE-EC-FO | 2 E1 ports, PCI, echo canceller, failover switch |
| Quasar-MEEX-EC-FO | 2 E1 ports, PCIe, echo canceller, failover switch |



You can see additional information
on the Parabel LTD products on the
www.parabel.ru web-site.

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