

## Sangoma A104D PCI PRI ISDN Card



Product Name: Sangoma A104D PCI PRI ISDN Card

Manufacturer: Sangoma

Model Number: A104D

Sangoma A104D PCI PRI ISDN Card

Please Note: This is a PCI Card. Please make sure your motherboard/server is compatible with this product.

[View PCI vs PCI-Express example](#)

The A104D PCIx has hardware based echo cancellation across 120 channels

The sandwich DSP card on the "d" model features Octasic's certified carrier-grade algorithms providing carrier grade echo cancellation and Voice Quality Enhancement (VQE) functions.

Supporting 32-672 channels G.168-2002 echo cancellation, a minimum of 1024 taps for a 128ms tail/channel on all channel densities, the system also supports Octasic music protection, acoustic echo control and adaptive noise reduction. The "d" model also features on-board DTMF decoding and tone recognition.

**Sangoma A104D Key Features**

• Quad port T1/E1/J1 card.

• Dimensions: 2U Form factor: 120mm x 55 mm for use in restricted chassis.

• 32 bit bus master DMA data exchanges across PCI interface at 132Mbytes/sec for minimum host processor intervention.

• Ring buffer DMA handling for minimum host intervention and guaranteed data integrity on high volume systems.

• Intelligent hardware: Downloadable Field Programmable Gate Array programming with multiple operating modes.

The A104 is the, quad port version of Sangoma's range of Advanced, Flexible Telecommunications (AFT) hardware designed for optimum support of voice and data over T1, E1 and J1.

The A104 provides full speed 132 Mbps PCI bus transfer with FPGA and DSP based processing to unload the host CPU in demanding environments such as soft PBX/IVR voice applications.

Compatible with both the 3.3v and 5v PCI bus, A104 cards operate in all commercially available motherboards sharing IRQs properly with themselves and all other PCI compatible devices, so you never have to worry about hardware compatibility issues.

Like all the Sangoma AFT Series, the A104 is field upgradeable to take advantage of the hardware and software improvements as they become available.

Optional Modes

The A104 and drivers fully support TDM voice gateways for the Asterisk® , Yate® , OPAL®; PBX/IVR projects, as well as other Open Source and proprietary PBX/Switch/IVR/VoIP gateway applications. The A104 and drivers fully support TDM voice gateways for the Asterisk® , Yate® , OPAL®; PBX/IVR projects, as well as other Open Source and proprietary PBX/Switch/IVR/VoIP gateway applications.

• Supports Robbed Bit Channel Associated Signaling (CAS) and ISDN PRI.

• Optimized per channel DMA streams and hardware-level HDLC handling unload the host CPU.

• EDACT (patent pending) technology is integrated to drastically reduce the load due to software echo cancellation, which is the largest component of CPU load in a typical soft PBX system.

• Field upgradeable hardware allows for new TDM-related functions to be added as they become available.

## Sangoma A104D PCI PRI ISDN Card

Full channelized mode to act as major network hub for sub-DS1 remotes. The A104 can support any configuration of up to 124 remote 64kbps connections carrying Frame Relay, PPP or HDLC data. Timeslots can be concatenated to support remote fractional T1/E1/J1 sites in any combination.

Raw bitstream interfaces can be used to support arbitrary non standard line protocols such as non-byte aligned monosynch or bisynch.

Mixed Voice/Data mode:

- Robust combination of router/PBX functions in one server.
- WAN data connection is supported by Sangoma's standard WANPIPE® routing stack, completely independently of TDM voice application for total system reliability.
- WANPIPE® supports certified, field tested and reliable Frame Relay, PPP, HDLC and X.25.

### Sangoma A104D - Technical Specifications

#### General Features

- Quad port T1/E1/J1 card.
- Dimensions: 2U Form factor: 120mm x 55 mm for use in restricted chassis.
- 32 bit bus master DMA data exchanges across PCI interface at 132Mbytes/sec for minimum host processor intervention.
- Ring buffer DMA handling for minimum host intervention and guaranteed data integrity on high volume systems.
- Intelligent hardware: Downloadable Field Programmable Gate Array programming with multiple operating modes.
- Allows new features related to voice and/or data to be added when they become available.
- DSP card on the A104d: o G.168-2002 echo cancellation in hardware o 1024 taps/128ms tail per channel on all channel densities o DTMF decoding and tone recognition
- Voice quality enhancement: Octasic music protection, acoustic echo control and adaptive noise reduction.
- Power: 800mA peak, operational 300mA max at +3.3v or 5v.
- Autosense compatibility with 5v and 3.3v PCI busses.
- Temperature range: 0 - 50C. Line decoding: HDB3, AMI, B8ZS.
- Framing: CRC4, non-CRC4, ESF, D4T1/E1.
- Clocking mode: Normal, Master.

#### T1/E1 Status alarms

- ALOSV: Loss of Signal alarm
- LOS: Receive Loss of Signal
- ALTLOS: Alternate loss of Signal Status
- OOF: Out of Frame
- RED: Telco Red Alarm condition
- AIS: Alarm Indication Signal
- OOSMFV: Loss of Signaling Multiframe
- OOCMFV: Loss of CRC Multiframe
- OOOFV: Out of Off-Line Frame
- RAIV: Receive Loss of Signal
- YEL: Receive Telco Yellow Alarm

#### Line protocols

- Frame Relay, X.25, HDLC, PPP, SS7, Transparent bit-stream, BSC.

#### Operating systems

## Sangoma A104D PCI PRI ISDN Card

↳ Linux (all versions, releases and distributions from 1.0 up).

Higher level protocols

↳ Asterisk Open PBX/IVR, IP/IPX over Frame Relay/ PPP/ HDLC/ X.25, X.25 over Frame Relay (Annex G), BSC over X.25 (DMT and TCOP), SNA over X.25, PPPoE, PPPoA, IP over ATM.

Warranty

↳ FIVE years parts and labour.

Certification

↳ FCC Part 15 Class A, FCC Part 68, CISPR 22, EN 55022 Class A, CIPSR 24, AFIC-S016, IEC 60950.

Diagnostic Tools

↳ WANPIPEMON, SNMP, System logs.

Production quality

↳ ISO 9002

**Price: £1,765.70**

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