

A104 QUAD T1/E1 AFT card based on AFT PCI Technology

5 YR WARRANTY!!!

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 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.

Operational Modes

Voice 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.
- 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.

Data only:

- T1/E1 and fractional T1/E1, single channel HDLC per line.
- Full channelized mode to act as major network hub for sub-DS1 remotes. The A104c 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.

Technical Specifications

- 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.
- 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, D4.
- 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
- OOOFFV: 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

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.	Production quality ISO 9002	
Certification FCC Part 68 FCC Part 15 Class A CISPR 22 CISPR 24 Safety: 6095-1 (Global Certification) Australian AFIC-S016-2001	RJ45 E1/T1 pinouts	
	Pin	Signal
	1	RTIP
	2	RRING
	4	TTIP
	5	TRING
Diagnostic Tools WANPIPEMON, SNMP, System logs.		

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