

# A108 OCTAL (8 PORT) T1/E1/J1 AFT card

The A108 is the octal port version of Sangoma's family of Advanced, Flexible Telecommunications (AFT) hardware designed for optimum support of voice and data over T1, E1 and J1.



The A108 provides up to 16.4Mbps of full duplex data throughput or 240 voice calls over eight T1 and or E1 lines to support high performance PCI-based routing and telephony systems. Advanced clocking features allow E1 and T1 lines to be mixed with full synchronization.

As part of Sangoma's AFT range of products, the A108 makes use of the same high performance PCI interface that has been deployed in large quantities all over the world.

The available A108d card includes Octasic's DSP hardware and certified algorithms providing carrier-grade echo cancellation and Voice Quality Enhancement (VQE) functions.

Like all the Sangoma AFT family, the A108 is field upgradeable to take advantage of hardware and software improvements as they become available.

## ***Technical Specifications***

- Eight T1/E1 ports with a single PCI interface for high performance voice and data applications.
- **TDM clocking mode:** Network timing can be passed from a network - connected DS0 to any or all of the other ports. Both T1 and E1 are supported simultaneously, making it possible to mix T1 channel banks and E1 networks with full channel synchronization.
- Line decoding: HDB3, AMI, B8ZS. Framing: CRC4, non-CRC4, ESF, D4T1/E1.
- Support for the **Asterisk™**, **OPAL™ Yate**, **FreeSwitch™** PBX/IVR projects, as well as other Open Source and proprietary PBX/Switch/IVR/VoIP gateway applications.

- All Sangoma's AFT products, including the A108 card use the same base PCI interface card, and the same professionally engineered firmware on the same family of Field Programmable Gate Arrays
- Fully PCI 2.2 compliant, compatible with all commercially available motherboards, proper interrupt sharing without manual tuning.
- Dimensions: 2U Form factor: 120mm x 55 mm for use in restricted chassis.
- Short 2U compatible mounting clips included for installation in 2U rackmount servers.
- High quality, tested RJ45 cables included.
- Power: 800mA peak, operational 300mA max at +3.3v or 5v.
- Temperature range: 0 – 50C.
- Autosense compatibility with 5v and 3.3v PCI busses.
- Intelligent hardware: Downloadable Field Programmable Gate Array programming with multiple operating modes. Field upgradeable so that new features related to voice and/or data can be added when they become available.
- 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.
- Supports Robbed Bit Channel Associated Signaling (CAS) and ISDN PRI.
- T1/E1 and fractional T1/E1, multiple channel HDLC per line for mixed data/TDM voice applications.
- Optimized per channel DMA streams and hardware-level HDLC handling unload the host CPU.
- EDAC™ (patent pending) technology will be integrated to drastically reduce the cost of echo cancellation.
- Field upgradeable hardware allows for new TDM-related functions to be added as they become available.
- Raw bitstream interfaces can be used to support arbitrary non-standard line protocols such as non-byte aligned monosynch or bisynch.
- WAN data connection is supported by Sangoma's standard **WANPIPE**® routing stack, and is completely independent of TDM voice application for total system reliability.
- **WANPIPE**® supports certified, field tested and reliable Frame Relay, PPP, HDLC and X.25.
  
- **Optional DSP daughterboard on the A108d**
  - G.168-2002 echo cancellation in hardware
  - 1024 taps/128ms tail per channel on all 256 channels
  - DTMF decoding and tone recognition
  - Voice quality enhancement: Octasic music protection, acoustic echo control and adaptive noise reduction.



### ***RJ 45 Pin-out***

<b>RJ45 E1/T1 pinouts</b>	
<b>Pin</b>	<b>Signal</b>
1	RTIP
2	RRING
4	TTIP
5	TRING

### ***Operating systems***

Linux (all versions, releases and distributions from 1.0 up). Windows, FreeBSD, Open BSD, NetBSD, Solaris

### ***Line protocols***

Voice CAS and PRI, ATM, Frame Relay, X.25, HDLC, PPP, SS7, Transparent bit-stream, BSC.

### ***Higher level protocols***

Asterisk, Yate, OPAL 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.

### ***Contact information***

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### ***Warranty***

Five years parts and labour.

### ***T1/E1 Status alarms***

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

### ***Certification***

FCC Part 15 Class A, FCC Part 68, CE.

### ***Diagnostic Tools***

WANPIPEMON, SNMP, System logs.

### ***Production quality***

ISO 9002