

# Sangoma Telephony Card

## A101 Single Port T1/E1/J1 Card

**The industry's first affordable single port T1/E1/J1 card with available Telco-grade hardware echo cancellation—designed for optimum voice support for smaller systems.**

The A101 is part of Sangoma's family of Advanced Flexible Telecommunications hardware product line—it uses the same high-performance PCI or PCI Express interface that is providing superior performance in critical systems all over the world.

The A101 supports up to 2.048 Mbps of full duplex data throughput or up to 30 voice calls over a single T1, E1, or J1 line.

With Sangoma cards, you can take advantage of hardware and software improvements, as soon as they become available. The A101, like all cards in Sangoma's AFT family, is field upgradeable with crash-proof firmware.

Choose the Sangoma A101D and A101DE, equipped with world class DSP hardware to achieve carrier-grade echo cancellation and voice quality enhancement functions for your telephone systems.



*A101DE 1-port T1/E1/J1 shown with available echo canceller and PCI-Express interface*

### RJ45 T1/E1 Pinouts

Pin	Signal	Pin	Signal
1	RRING	4	TRING
2	RTIP	5	TTIP

### Technical Specifications

- One T1/E1 port with optimum PCI or PCI-Express interface for high performance voice and data applications
- Support for Asterisk®, FreeSwitch™, and Yate as well as other Open Source and proprietary PBX, Switch, IVR, and VoIP gateway applications
- All of Sangoma's AFT products use the same base PCI interface card. Fully compatible with all commercially available motherboards—proper PCI-standard interrupt sharing without manual tuning
- Dimensions: 2U Form factor: 120 mm x 55 mm for use in restricted chassis; **includes high-quality, tested RJ45 cables and short 2U mounting clips** for installation in 2U rack-mount servers
- Intelligent hardware: Downloadable FPGA programming with multiple operating modes. Add new features related to voice and/or data when they become available
- Autosense compatibility with 5 V and 3.3 V PCI busses
- Line decoding: HDB3, AMI, B8ZS
- Framing: CRC-4, Non CRC4, ESF, SF, D4. Also compatible with Japan's J1
- A101E and A101DE PCI Express: 1 Lane PCI Express bus
- Maximum operational power for PCI: 3 W (0.6 A @ 5 V)  
For PCI Express: 2.5 W (0.76 A @ 3.3 V)
- Temperature range: 0 – 50 °C
- 32-bit bus master DMA data exchanges across PCI interface at 132 Mbytes/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
- Use raw bitstream interfaces to support arbitrary non-standard line protocols, such as non-byte aligned monosynch or bisynch
- WANPIPE® routing stack 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 Hardware Echo Canceller Daughterboard

- G.168–2002 echo cancellation in hardware
- 1024 taps/128 ms tail per channel on all channel densities
- DTMF decoding and tone recognition
- Voice quality enhancement: music protection, acoustic echo control, and adaptive noise reduction
- Does not increase the physical size of the card, and no additional slot is required

### Operating Systems

- Windows® 2003, Windows® XP, Windows® Server 2008, Windows® Vista, Windows® 7
- Linux (all versions, releases and distributions from 1.0 up)

### T1/E1 Status Alarms

- RED: Telco Red Alarm Condition
- OOF: Out of Frame
- LOS: Receive Loss of Signal
- AIS: Alarm Indication Signal
- RAI: Remote Alarm Indication (Yellow Alarm)

### Line Protocols

Voice CAS, MFC/R2, PRI, ATM, Frame Relay, X.25, HDLC, PPP, SS7, Transparent bit-stream, BSC

### Higher Level Protocols

IP/IPX over Frame Relay/PPP/HDLC/X.25, X.25 over Frame Relay (Annex G), BSC over X.25, SNA over X.25, PPPoE, PPPoA, IP over ATM

### Certification

- FCC Part 15 Class A, FCC Part 68, CISPR 22, EN 55022, Class A, CISPR 24, AFIC-2016, IEC 60950, JATE
- Technical certifications in Russia, Malaysia, and Australia

### Diagnostic Tools

WANPIPEMON, SNMP, system logs

### Warranty

Lifetime warranty on parts and labour. Plus a 30-day no questions asked return policy.

### Production Quality

ISO 9002

The A101 is a digital data and voice network card, not subject to TNV evaluation as an approved TELCO-provided DMARK device, providing that isolation from the TNV is utilized in the end-use application.

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