

# PRESS RELEASE

## Communication Automation Corporation

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### **ARROW2: T1/E1 Cardbus Integrates TI 'C5420 DSP and Stereo Audio**

West Chester, PA. January 1, 2002 – Communication Automation Corp (CAC) today announced the ARROW2, a powerful solution for portable digital telecom applications, either for testing a T1/E1 line or monitoring and analysis of the transmitted data.



**Arrow2 CARDBUS PCMCIA with TI 'C5420**

Occupying a single 32-bit CardBus slot, it offers a full-duplex T1 or E1 interface as well as a high-quality programmable stereo audio codec. The 200 MIPS DSP along with the API software layer gives the Arrow2 the capability to pre-process telecom data, such as time-slot channelization, echo cancellation, DTMF, etc.

## **Line Interface**

The Arrow2 uses the PMC-Sierra PM4351 COMET T1/E1 line interface/framer chip. This highly configurable device supports all current T1 and E1 standards and can operate both in long-haul and short-haul applications. The standard card is compatible with either 100 ohm T1 or 120 ohm E1 (software configurable) and can be ordered with a 75 ohm impedance for E1. It includes over-voltage surge protection intended for use with intra-facility T1/E1.

## **Audio Interface**

The Arrow2 uses the TLV320DAC23 by Texas Instruments, a high-performance stereo audio codec with highly integrated analog functionality, such as software programmable sampling rates from 8kHz to 96kHz. The ADCs and DACs use multi-bit sigma-delta technology with integrated over-sampling digital interpolation filters. The gain is programmable for the stereo line inputs and the electret-microphone input (voltage-bias output available.) A stereo headphone amplifier features independently programmable volume control and mute for the left and right channels. It is capable of delivering 30mW per channel into 32 ohms. The line-in and line-out signals are AC-coupled, centered about ground.

## **DSP & Memory**

Texas Instrument's TMS320C5420 is a dual-core, fixed-point DSP clocked at a rate of 100MHz for a performance rating of 200MIPS. Both DSP cores each have three McBSP ports: one port wired to the Comet T1/E1 chip and the other two ports to the codec. Each core can control either the Comet or the codec or both. The DSP's internal memory of 100k words is augmented by 8MB of SDRAM.

## **JTAG Emulation Port**

To aid in software development and testing, the Arrow2 may be ordered with a JTAG emulator connector accessible through an opening in the top lid.

## **Programming Interface**

CAC provides development support software consisting of device drivers, API's, demos and diagnostics. The Windows2000 API layer enables the user to record and playback data to/from disk without the need to program the DSP. The device driver provides low-level access to the DSP and T1/E1 framer hardware.

## **External Connections**

Three styles of pods offer RJ45, triax and BNC options for connection to the T1/E1 line and 3.5mm (1/8 inch) stereo jacks for the audio interfaces.

## CARDBUS PCMCIA

CardBus provides a 32-bit multiplexed address/data path, which operates at PCI local-bus speeds of up to 33 MHz, yielding a peak bandwidth of 132MB/sec. CardBus accomplishes this by adopting the synchronous burst-transfer orientation of PCI, as well as a bus protocol which is essentially identical to that of PCI.

Besides supporting a PCI-like data rate, CardBus devices are capable of acting as system bus masters; that is, they can assume control of the system bus (or busses) to effect data transfers.

CardBus shares PCI's hardware configuration approach, which allows configuration at boot time and/or dynamically during run-time. CardBus cards and host interfaces include a standardized "header" consisting of configuration registers. These registers support the "Plug and Play" capabilities of CardBus.

The throughput of the PC Card interface is shown below. Please note that actual throughput may be substantially less than the theoretical maximums of the interface.

Theoretical maximums are as follows:

	Byte mode	Word Mode	Dword Mode
CardBus (32 bit burst mode)	33MB/sec	66MB/sec	132MB/sec
16-bit Memory Transfers (100 ns Minimum cycle)	10MB/sec	20MB/sec	-
16-bit I/O Transfers (255 ns Minimum cycle)	3.92MB/sec	7.84MB/sec	-

## Price

Single unit pricing for the ARROW2 ranges from \$2,000 to \$2,600, depending on options. For additional information on this product line, please contact Communication Automation Corporation Phone (800) 367-6735 or (610) 692-9526. Fax (610) 436-8258. Web: [www.cacdsp.com](http://www.cacdsp.com). Email: [sales@cacdsp.com](mailto:sales@cacdsp.com).