miniR®v2 Solid State Recorder

Traditional Flight Test Recording & Network File Server Functionality

AMPEX
Excellence at the Edge

The miniR® v2 Solid State Recorder is a P3I update to the original miniR 700 with the same SWaP (Size, Weight, and Power), but with dramatic increases in throughput speed, storage, and user configuration flexibility. The system refresh includes a new Intel x64 CPU, lower cost solid state removable memory module, new multiplexer, higher speed interfaces, Ampex Common Compute Environment software (ACCE), and full backwards compatibility with existing I/O module interfaces. This provides existing users compatibility with their existing data interfaces from the Ampex miniR 700 and AMux multiplexers.

Typical Applications
Video & Imagery • Flight Test Data & Telemetry
Electronic Warfare & RF Signals Data

Besides the breadth of I/O interfaces offered for traditional instrumentation sources such as serial, SD/HD Video, MIL-STD-1553B, Analog, Firewire, Gigabit Ethernet, etc., the new miniR v2 can be configured with a new PCIe I/O interfaces for higher-speed modules to be released, and/or an additional PCIe CPU. The base mini-recorder unit now includes Gigabit Ethernet and the Power Filter as standard.

The new lower cost solid state mRMM (mini Removable Memory Module) features a USB3.0 interface to the system bus, as well as a direct download from the mRMM to a user laptop or server. The mRMM is similar to that used in other Ampex Network Attached Storage (NAS) TuffServ product lines. Initial released memory capacities range from 64GB to terabytes. Ampex will release various mRMM storage and performance options over time for customer applications.

The miniR v2 is designed with future capabilities in mind and is planned to evolve with new technology enhancements such as FIPS encryption.

Data Interfaces and Formats

- IRIG 106 Chapter 10 File Format
- IRIG 106 Chapter 11 Packet Format
- Network Acquisition as well as Output Interfaces
- HD & SD Video, SDI, DVI, MPEG2 H.264/AVC
- IRIG 106 Chapter 7 Output
- GPS, IRIG-B HAVE QUICK Time Signals
- Variety of AMux 600/700 I/O Modules

- **From 64GB up to 1TB+ of Removable Storage**
- **Totally Flexible & Modular I/O**
- **Extremely Compact in Size**
- **Rugged / Airborne Capable**
- **IRIG 106 Chapter 10 File Format**
- **Sustained Data Rates to 1,000 Mb/sec**
- **Ethernet Streaming & Publishing**
- **Real Time Data Reduction Capabilities**
- **Outputs Chapter 10/11 Data as a Chapter 7 serial PCM stream**
- **Hot Swappable mRMM**
- **USB 3.0 RMM Download**
- **FIPS 140 Encryption Option**

View the Video Datasheet at ampex.com/video-datasheets

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Environmental	Specifications		
Temperature	Operating	-40°C to +71°C	
	Non-operating	-56°C to +80°C	
Altitude		70,000 ft	
Humidity		0% to 100% RH	
Random vibration / shock		14 g_{rms} / 20 g. 11ms	

Conduction cooling solution required for full temperature range
(Complete MIL-STD-810 test report results available on request)

Operational Specifications[2]

Sustained I/O data rate	1,000 Mb/sec
mRMM capacity	64 GB to 1TB+
Intel Atom E3800 Series CPU	

Software Configuration

Web-browser service on control Ethernet port, Serial Port & TMATS
Ampex ACCE Linux RedHat 7.x O/S

Dimensions	W x H x L	Weight	Power (MIL-STD-701)
Base Unit	4.125" x 3.5" x 6.82"	74 oz. incl. mRMM cradle	15W@28DVC
Typical I/O Module	4.12" x 3.12" x 0.454" ‡	5.3 oz. (typical)	Module dependent, up to 10W
(‡ Some I/O modules may be double or triple thick.)			100 Watt Power Supply

Modules and Interfaces		Available Interfaces
miniR v2	(Base Unit)	GigE 1Gbps, 10/100Mbps Ethernet, RS232/422, Power Filter
IRIG-106 I/O subsystem adapter	PCIe-MUX CNTR	IRIG-B AC & DC, HAVE QUICK, PPS discrete I/O on Power Supply board, All mR-X02 Features plus AMux600 Support
PCIE I/O Interface	TBD	High-Speed Interface, CPU, etc.

The miniR v2 Base Unit Includes: End Cap, MB 200, mR Xe1, CX 211, PS 210, PS 220, RMM Carrier, and End Cap with termination assembly.

Module	Input	Output	Description
AM-132	2 (+2)	–	Video: RS-170A (NTSC/PAL) with MPEG2/4 Encoder, 2 audio, Event Tone, Time Insertion
AM-11x4	4 (+2)	–	Video Input: RS-170A (NTSC/PAL) matted "4 up" on a single 1440x1152 HD frame, 2 audio, incl. Event Tone, Time Insertion
AM-170x	–	–	MPEG-4/H.264 (AVC) Encoder with two channel audio; requires a video input module
AM-15F	1	–	Video: FC-AV (HSVN-9) Interface for F/A-18; Triple-width module
AM-156	6	–	Audio: CVSD at 32Kbps rate
AM-172	1 (+2)	–	Video: SDI/HD-SDI to 1080p with H.264 Encoder, KLV metadata, 2 audio
AM-173	1 (+2)	–	Video: HD DVI-A, DVI-D to 1080p with H.264 Encoder, 2 audio
AM-204	4	–	MIL-STD-1553B Bus Monitor (4 dual-redundant busses)
AM-228	8	–	ARINC 429 bus monitor
AM-261	1	–	IEEE1394B (FireWire) IIDC v1.31 DCAM Acquisition (400/800Mbps)
AM-264	1	–	IEEE1394B (FireWire) Bus Monitor (400/800Mbps)
AM-338	8	–	PCM: NRZ-L data with clock (RS-422 and TTL levels), data rate to 20Mb/s
AM-344	4	–	PCM: NRZ-L data with clock, Bi-phase, RS-422 and TTL levels, data rate to 20Mb/s
AM-413	3/2/1	–	Parallel input, programmable as 32bits x 1, or 16bits x 2, or 8bits x 3
AM-432	32	–	Discrete Inputs, TTL levels, debounced
AM-458	8	–	RS-232, RS-422/485 up to 1 million baud
AM-524	4	–	Analog with ICP interface: 16-bit resolution (Programmable Gain/Offset/Resolution)
AM-51b6	16	–	Analog with ICP interface: 16-bit resolution (Programmable Gain/Offset), requires AM-530a
AM-530a	–	–	Analog control module for AM-5xb6 with Digital Filter
AM-60x	1 / 2	–	Low overhead HOTLink II™ 400Mbps serial ports, one (AM-601) or two (AM-602) channels.
AM-801	1	1	IEEE802.3 Gigabit Ethernet for frames ("sniffing"), UDP, and TCP, input & output
AM-901	1	–	GPS: Time input and Time-Space-Position-Information channel
AO-381	–	1	PCM Output for on-board data reduction and telemetry downlink
AO-387	–	1	PCM Chapter 7 Output for on-board data reduction and telemetry downlink
AO-388	–	1	PCM Chapter 8 Output for on-board data reduction and telemetry downlink
AO-811	–	1	IEEE802.3 Gigabit Ethernet for Chapter 10 Publish

System specifications and design are preliminary and subject to revision
Contact Ampex for availability of options