daqscribe

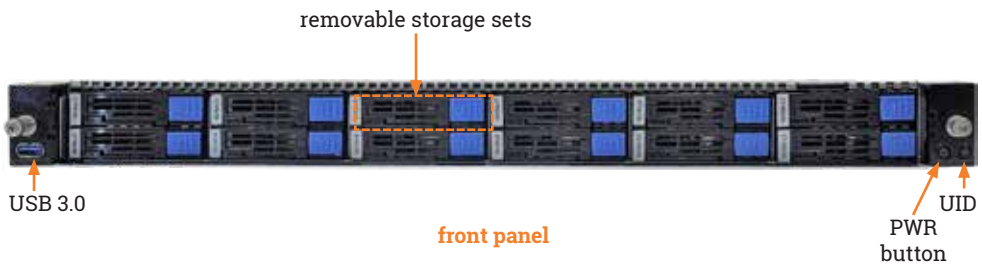
ETHERNET PACKET CAPTURE • RECORD • PLAYBACK

DDR7000-Rx series

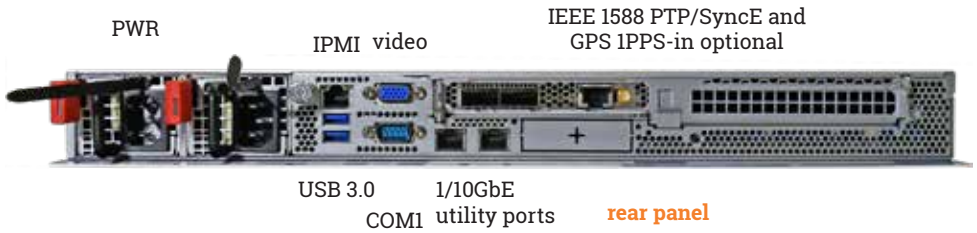
.2022

Innovated and produced in the U.S.A

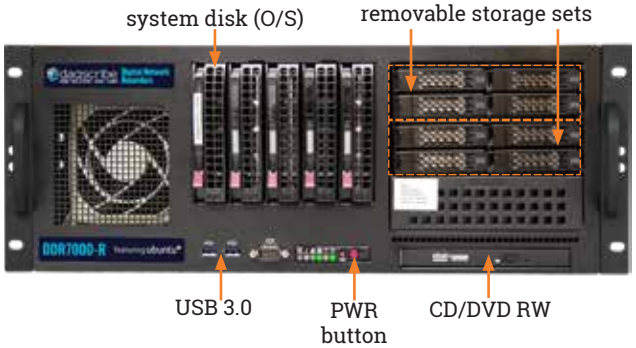
DDR7000-R1 SERIES ETHERNET RECORDERS

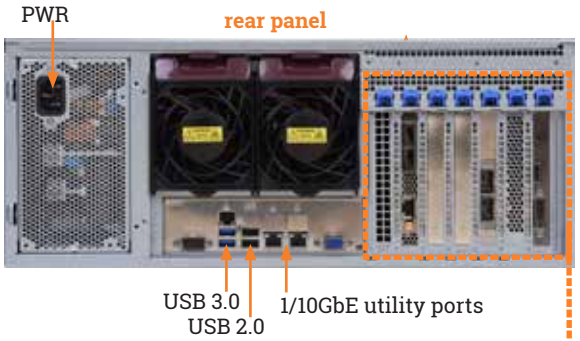


100G	40G	25G	10G
P1 QSFP28	P1 QSFP+	P1 SFP28	P1-P4 QSFP+ to SFP+
P2 QSFP28	P2 QSFP+	P2 SFP28	P5-P8 QSFP+ to SFP+

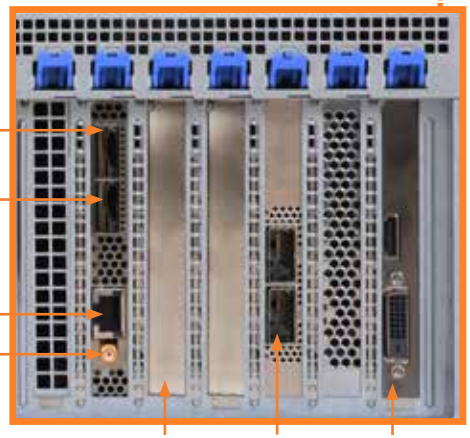


DDR7000-R4 SERIES ETHERNET RECORDERS





100G	40G	25G	10G
P1 QSFP28	P1 QSFP+	P1 SFP28	P1-P4 QSFP+ to SFP+
P2 QSFP28	P2 QSFP+	P2 SFP28	P5-P8 QSFP+ to SFP+



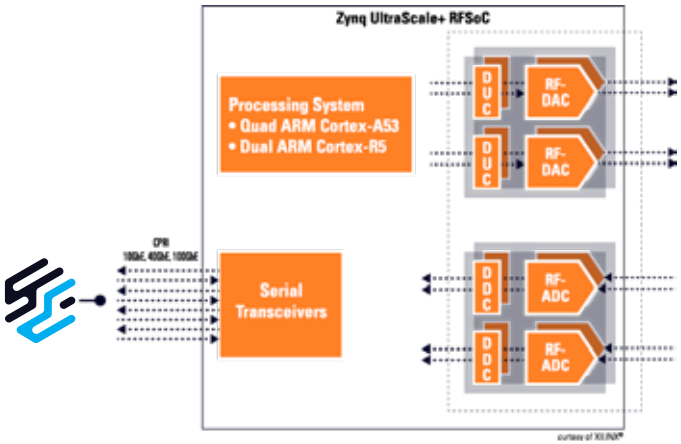
DDR7000-RX SERIES RECORDERS FOR NEXT GEN SDR

Radio Frequency System-on-Chip (**RFSoC**) is a breakthrough in Software Defined Radio (**SDR**), bringing a major step forward in Radio Frequency (**RF**) sensing to Digital Signal Processing (**DSP**) performance and channel density.

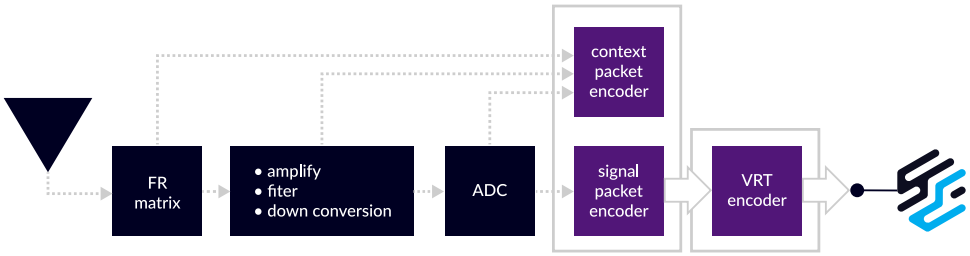
System engineers will continue to recruit the latest Ethernet technologies, such as **25GbE, 40GbE,** and **100GbE links** to support a reliable transport of real-time data between key DSP subsystems.

Our Ethernet recorders are going to be instrumental for your future defense and intelligence SDR platforms – **from design to deployment**.

RADIO FREQUENCY SYSTEM-ON-A-CHIP



SOFTWARE DEFINED RADIO



RECORDER HIGHLIGHTS

- Our fastest rackmount Ethernet recorder series.
- Sustained **100%** Ethernet capture, record, and playback performance.
- **Real-time** standard PCAP status monitoring of capture ports.
- Up to **1PB (SSDs)** of local data storage.
- **STIG** compliant & **AES256** encryption options.
- Data offload: **USB 3.0** and **10GbE, 25GbE or 40GbE** ports.

DESIGNED FOR ANY NETWORK PROTOCOL

Daqscribe Ethernet recorders feature high-performance network technologies that grab data from **Layer-2** of the **OSI stack**.

This means precise packet-capture no matter the protocol, including **IPV4** or **IPV6**; **TCP** to **SCTP**; and **IP Unicast** to **IP Multicast**.

Data is reliably stored to enterprise **SSDs** in real-time and as **standard PCAP-formatted files.**

Access and analyze your recorded packet-data with common network analysis tools such as **Wireshark®** and **ntop®**.

100% capture & record from Layer 2

7	Application	High level APIs. HTTP, FTP, SMTP	SOFTWARE
6	Presentation	Encryption / decryption compression Context for communication between levels	SOFTWARE
5	Session	Controls dialogue between computers Controls terminations and results	SOFTWARE
4	Transport	Enables transfer of data TCP/UDP End-to-end connection	SOFTWARE
3	Network	Connects hosts on different networks IPV4 + IPV6. Routing of data packets.	SOFTWARE
2	Data Link	Provides connections between hosts on the same network. (Ethernet MAC addresses)	HARDWARE
1	Physical	Electrical + physical specifications for devices. Cables and connectors. Data in bits (1's and 0's)	HARDWARE

Rackmount Ethernet recorders	Storage options Subject to availability and substitution	Line rate performance Packet Size 61 to 10,000 bytes	Network interfaces IEEE802.3	Port type	Modules (not included)
DDR7000-R1/R4-100G 100Gbps throughput **100GbE-link x 1**	25TB, 50TB, 120TB, 180TB	Rx: 100Gbps Tx: 100Gbps	100GbE	1 x QSFP28	QSFP28 100GBASE CR4/SR4/LR4
DDR7000-R1/R4-100G-2 160Gbps throughput **100GbE-link x 2**	25TB, 50TB, 120TB, 180TB	Rx: 160Gbps (1 x 100Gbps or 2 x 80Gbps) Tx: 160Gbps (1 x 100Gbps or 2 x 80Gbps)	100GbE	2 x QSFP28	QSFP28 100GBASE CR4/SR4/LR4
DDR7000-R1/R4-40G-2 80Gbps throughput **40GbE-link x 2**	12TB, 25TB, 50TB, 120TB, 180TB	Rx: 80Gbps (2 x 40Gbps) Tx: 80Gbps (2 x 40Gbps)	40GbE	2 x QSFP+	QSFP+ 40GBASE CR4/SR4/LR4
DDR7000-R1/R4-40G-4 160Gbps throughput **40GbE-link x 4**	25TB, 50TB, 120TB, 180TB	Rx: 160Gbps (4 x 40Gbps) Tx: 160Gbps (4 x 40Gbps)	40GbE	4 x QSFP+	QSFP+ 40GBASE CR4/SR4/LR4
DDR7000-R1/R4-25G-4 100Gbps throughput **25GbE-link x 4**	25TB, 50TB, 120TB, 180TB	Rx: 100Gbps (4 x 25Gbps) Tx: 100Gbps (4 x 25Gbps)	25GbE	4 x SFP28	SFP28 25GBASE CR/SR/LR/LR-BiDi, dual-rate 10/25GBASE-SR/LR
DDR7000-R4-25G-6 150Gbps throughput **25GbE-link x 6**	38TB, 76TB, 153TB, 180TB	Rx: 150Gbps (6 x 25Gbps) Tx: 150Gbps (6 x 25Gbps)	25GbE	6 x SFP28	SFP28 25GBASE CR/SR/LR/LR-BiDi, dual-rate 10/25GBASE-SR/LR
DDR7000-R4-10G-8 80Gbps throughput **10GbE-link x 8**	25TB, 50TB, 120TB, 180TB	Rx: 80Gbps (8 x 10Gbps) Tx: 80Gbps (8 x 10Gbps)	10GbE	8 x SFP+	4 x 10GBASE CR/SR/LR
DDR7000-R4-10G-16 160Gbps throughput **10GbE-link x 16**	25TB, 50TB, 180TB	Rx: 160Gbps (16 x 10Gbps) Tx: 160Gbps (16 x 10Gbps)	10GbE	16 x SFP+	4 x 10GBASE CR/SR/LR breakout from SFP+
DDR7000-R4-PB 160Gbps throughput **100GbE-link x 2**	1PB	Rx: 160Gbps (1 x 100Gbps or 2 x 80Gbps) Tx: 160Gbps (1 x 100Gbps or 2 x 80Gbps)	100GbE	2 x QSFP28	2 × QSFP+ ports, 2 x QSFP28

DDR7000-R1 SERIES SYSTEMS SPECIFICATIONS

Performance	✔ 100% packet capture, record, playback	
Hardware Time Stamp	✔ Resolution: 1 ns, Stratum 3 compliant TCXO ✔ Time formats: PCAP-ns/-µs, UNIX 10 ns, 1 ns	
Timing/Synchronization	✔ OS time synchronization ✔ SMA interface for PPS (optional) ✔ RJ45 100/1000BASE-T interface for IEEE 1588 PTP and SyncE support (optional)	
Data Format	✔ PCAP format (capture/record only) ✔ NTCAP – PCAP style binary format (capture/replay) ✔ CLI utilities: Simple/quick conversion from NTCAP to standard PCAP format or payload extraction	
Optional Capture /Record In-Line Features (FPGA Processing)	✔ Filtering based on e.g. L3/L4 criteria ✔ GTP, IP-in-IP, GRE and NVGRE tunneling support ✔ IP fragment handling	✔ Slicing at fixed or dynamic offset ✔ Local retransmission (in-line application)
Storage Options	✔ NVMe NAND flash (enterprise) ✔ Storage in TB with endurance TBW (Total Bytes written in PB) ✔ SSD endurance TBW is based on 128K sequential writing	
CPU & Memory	✔ Intel® Xeon® scalable dual socket CPU(s) or AMD EPYC™ CPU(s) ✔ System memory from 128GB up to 2TB	
Peripherals	✔ Power On/Off switch & LED, Locate switch & LED, NMI switch, 2 x LAN LED ✔ 2 x rear 1GBASE-T, 1 x 1GbE IPMI	✔ 2 x rear USB3.0 ✔ 1 x rear COM port ✔ Rear VGA display
Data Offload Options	✔ 10G: 2 or 4 x SFP+ or 10GBASE-T ✔ 40G: 1 or 2 x QSFP+ ✔ 100G: 1 or 2 x QSFP28	
Temperature	✔ Operating temperature: 0°C to 35°C (32°F to 95°F) ✔ Operating humidity: 20% to 80%	
System Cooling	✔ 6 x 40mm fans with Smart Fan Control	
Power Supply	✔ 850W high efficiency 1 + 1 dual redundant power supply, 100-240VAC, 50-60Hz	
Dimensions & Weight	✔ H 1.69" (4.3cm) x W 17.26"(43.9cm) x D 26.77" (68cm) ✔ Weight: 35lbs (16kg)	
What's Included	✔ 1U chassis rail kit (includes side handles) ✔ Display monitor, keyboard and mouse NOT included	

System specifications subject to change

DDR7000-R4 SERIES SYSTEMS SPECIFICATIONS

Performance	✔ 100% packet capture, record, playback	
Hardware Time Stamp	✔ Resolution: 1 ns, Stratum 3 compliant TCXO ✔ Time formats: PCAP-ns/-µs, UNIX 10 ns, 1 ns	
Timing/Synchronization	✔ OS time synchronization ✔ SMA interface for PPS (optional) ✔ RJ45 100/1000BASE-T interface for IEEE 1588 PTP and SyncE support (optional)	
Data Format	✔ PCAP format (capture/record only) ✔ NTCAP – PCAP style binary format (capture/replay) ✔ CLI utilities: Simple/quick conversion from NTCAP to standard PCAP format or payload extraction	
Optional Capture /Record In-Line Features (FPGA Processing)	✔ Filtering based on e.g. L3/L4 criteria ✔ GTP, IP-in-IP, GRE and NVGRE tunneling support ✔ IP fragment handling	✔ Slicing at fixed or dynamic offset ✔ Local retransmission (in-line application)
Storage Options	✔ NVMe NAND flash (enterprise) ✔ Storage in TB with endurance TBW (Total Bytes written in PB) ✔ SSD endurance TBW is based on 128K sequential writing	
CPU & Memory	✔ Intel® Xeon® scalable dual socket CPU(s) or AMD EPYC™ CPU(s) ✔ System memory from 96GB up to 2TB	
Peripherals	✔ Power On/Off switch & LED, Locate switch & LED, NMI switch, 2 x LAN LED ✔ 2 x rear 10GBASE-T, 1 x 1GbE IPMI	✔ 2 x rear USB3.0 ✔ 1 x rear COM port ✔ Rear VGA/DVI/HDMI display
Data Offload Options	✔ 10G: 2 or 4 x SFP+ or 10GBASE-T ✔ 40G: 1 or 2 x QSFP+ ✔ 100G: 1 or 2 x QSFP28	
Temperature	✔ Operating temperature: 0°C to 35°C (32°F to 95°F) ✔ Operating humidity: 20% to 80%	
System Cooling	✔ 92mm, 2 x 80mm fans with Smart Fan Control ✔ Front bezel with removable air filter	
Power Supply	✔ 865W high efficiency power supply, 100-240VAC, 50-60Hz	
Dimensions & Weight	✔ H 7" (17.8cm) x W 17.2"(43.7cm) x D 20.5" (52.1cm) ✔ Weight: 50lbs (24kg)	
What's Included	✔ 4U chassis rail kit (includes side handles) ✔ Display monitor, keyboard and mouse NOT included	

System specifications subject to change

netSUITE™ & netENGINE™ IP

Our Ethernet packet recording successes start with the careful selection of hardware for integration into our products.

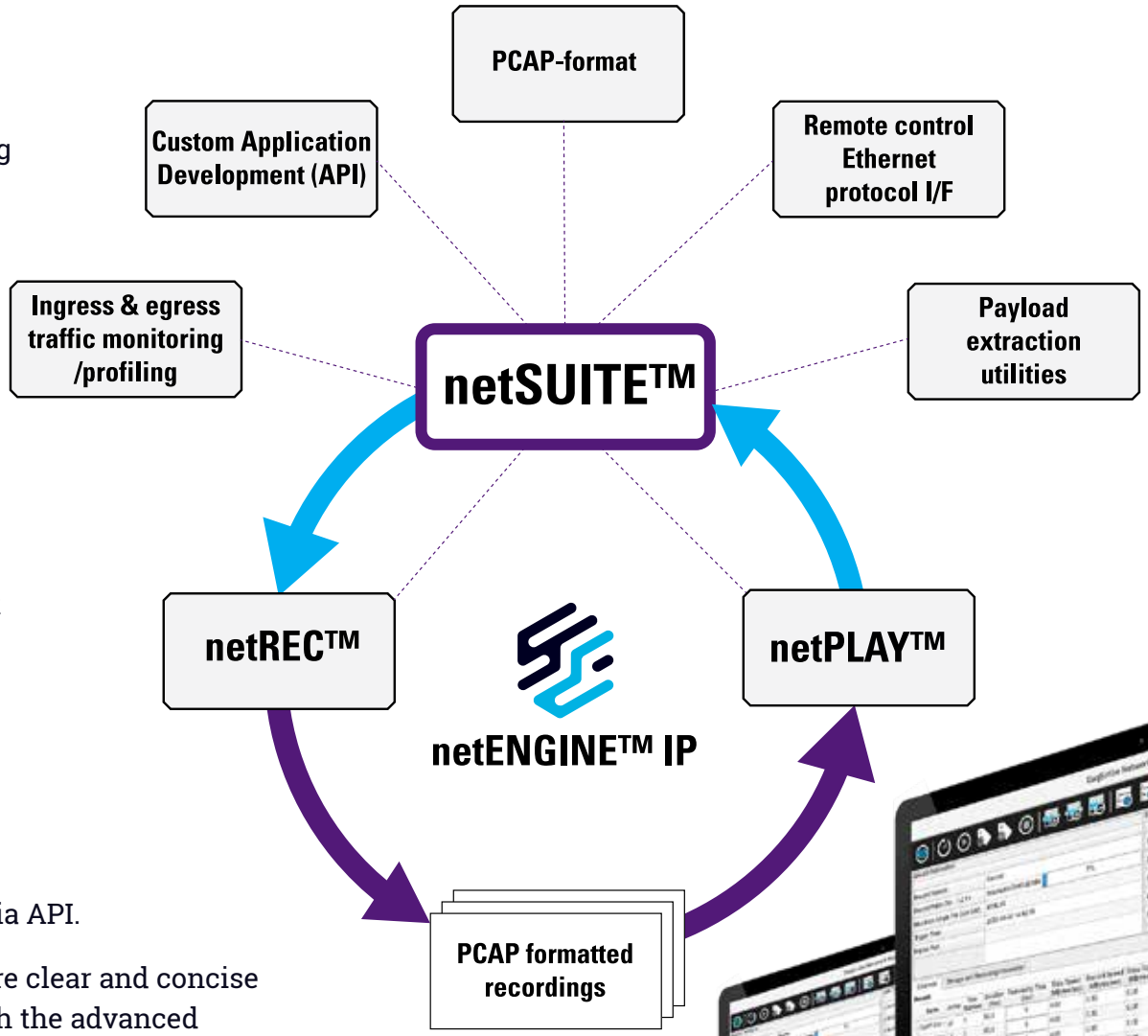
The end-to-end network data paths are then driven by our specially developed **network-engine IP**.

The result is a well-tuned Ethernet record and playback instrument, whose system functions are directed by one of our powerful software modules within **netSUITE™**.

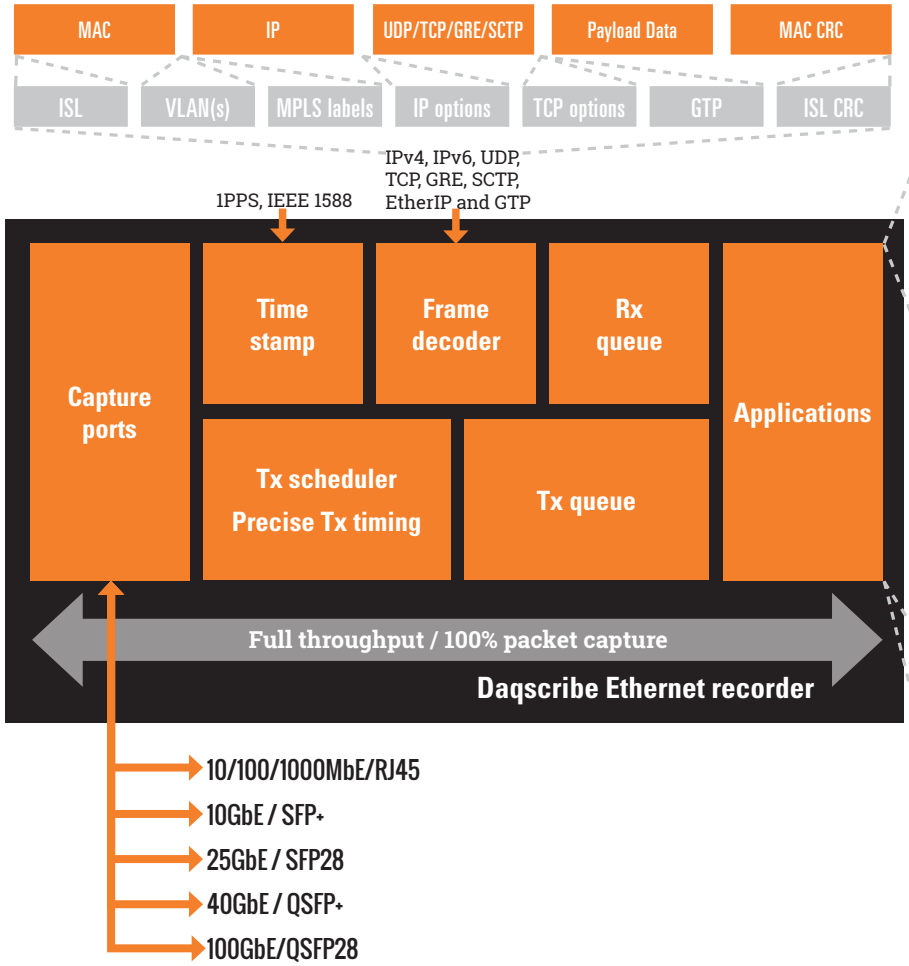
Operation workflows are easy to setup and manage from either your desktop or via API.

netREC™ and **netPLAY™** feature clear and concise GUIs, for consideration of both the advanced and novice users.

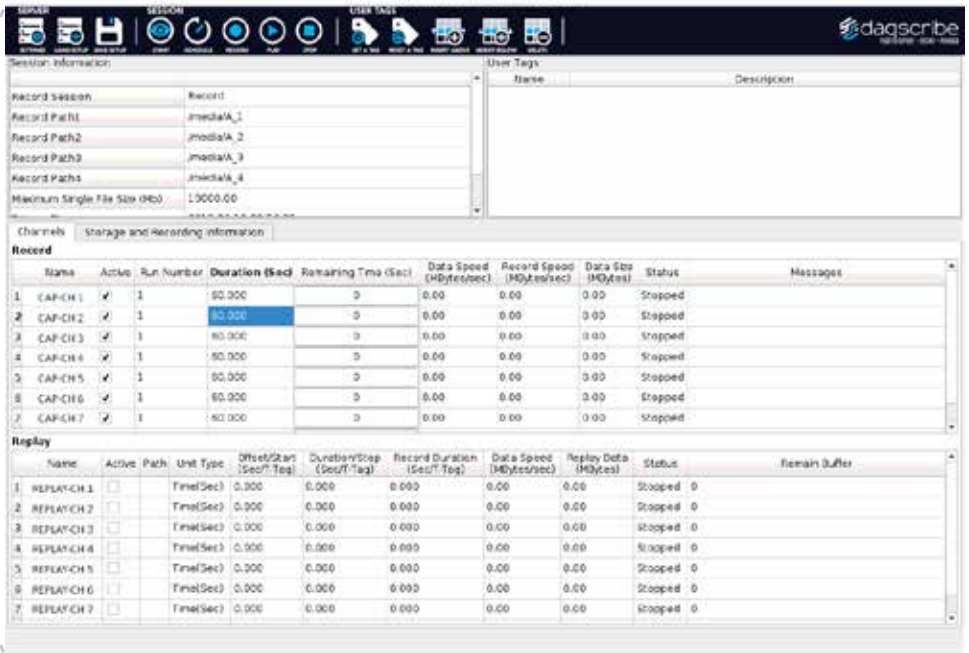
Your data can be found within our standard Linux file system, in **PCAP-format,** and on enterprise-grade solid-state storage.



SYSTEM BLOCK DIAGRAM



netSUITE™ software, featuring netREC™ and netPLAY™



L2 monitoring tool

- Port statics/RMON counters RX/TX
- Checksum error counters
- Packet decode counters
- Drop counters
- IPF table counters
- Sensor monitoring
- PPS statistics
- IEEE 1588 PTP

Daqscribe Ethernet recorders are Assured Data Availability Solutions (ADAS) offering 100% packet capture, record, and playback capabilities

USE CASES

Spectrum Research

Electromagnetic sensing & analytics
- ✔ Wideband digital receivers
- ✔ Radio frequency system-on-a-chip
- ✔ Digital signal processing

Telecommunications

Network planning, rollout, and QoS
- ✔ 5G wireless access
- ✔ Mobile edge computing
- ✔ Core networks

Cyber Operations

Computer & Network Defense
- ✔ Offensive computing
- ✔ Deep packet inspection
- ✔ Network capture & store

A VERSATILE PROCESSING PLATFORM
(software examples)

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Daqscribe
8 Inverness Drive, Suite 102, Centennial, CO 80112
email: contact@daqscribe.com
phone: **+1 (303) 220-7457**
fax: +1 (303) 220-7450
daqscribe.com

facebook.com/daqscribe
twitter.com/daqscribe
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