DRA Series

Ultra-High-Speed Data Recording and Processing Unit

Nippon Control System Corporation

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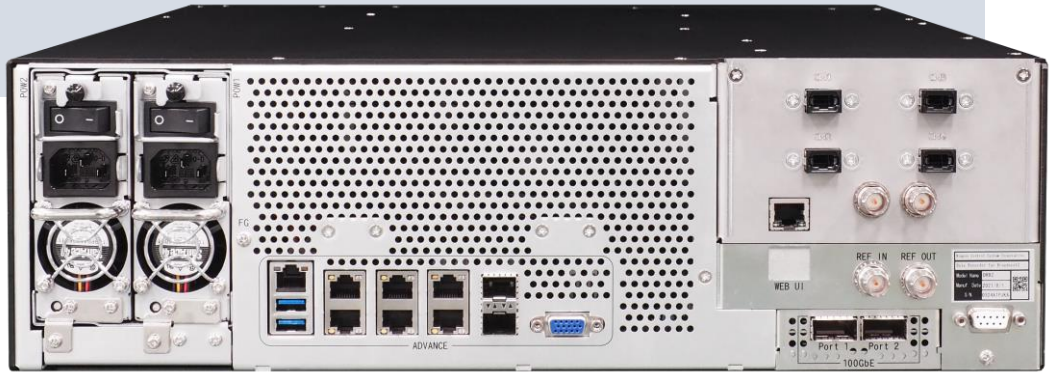
Introduction

- DRA Series industry-leading high-performance data recorders can be used in a wide variety of applications, configurations, and use cases
- NCS provides customized DRA Series data recorder configurations to further enhance performance for specialized user requirements

Ultra-High-Speed Data Collection, Processing, and Storage

- Recording and playback at speeds **up to 30 GB/s** (240 Gbps)
- **Customizable** interfaces and protocols
- Optional **real-time analysis & signal processing**



Applications

Satellite Data

Aerial Survey Data

Radar Transmission Data

Up to 30GB/s

Customized IF

DRA Main Unit

Processing

Extended Storage

LAN

Management Terminal

10GbE
100GbE

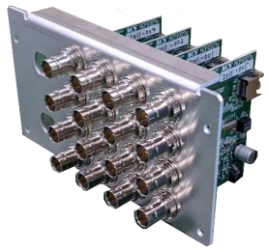
Data Server

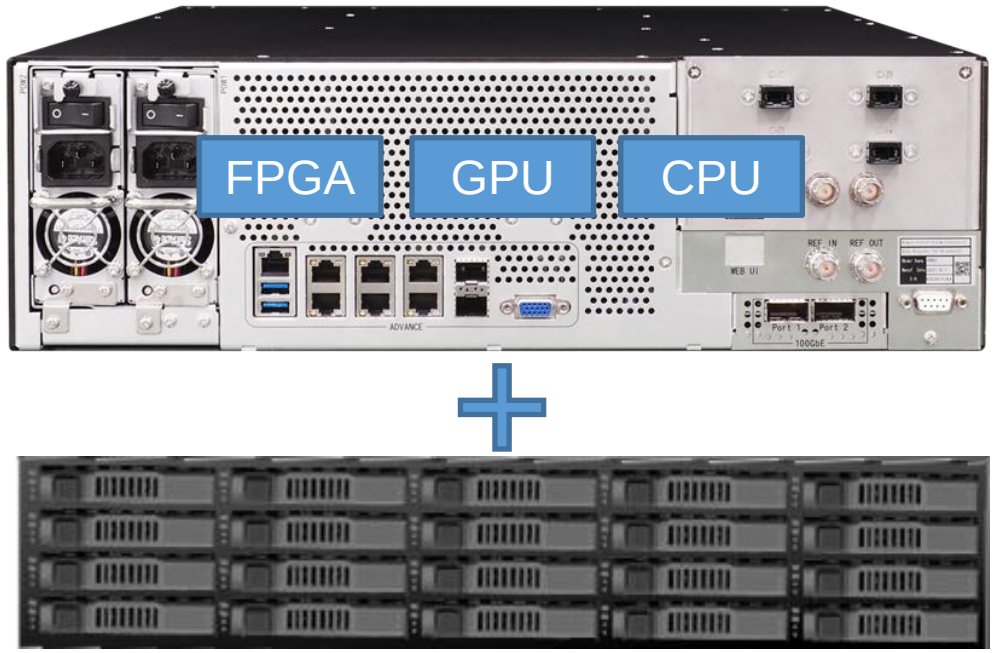
DRA - Basic Configuration

Optimally built with a combination of our standard components

1. Interface Selection

- CXP-12
- Serial FPDP
- JESD204B
- Aurora 64B/66B
- GPS
- Sensors
  Temperature, Humidity, etc.





2. Storage Size Selection

Main Unit
- 46 TB
- 60 TB
- 92 TB

Extended Storage
- +128 TB～

Case 1: Ultra-High-Speed, Large-Capacity Data Capture

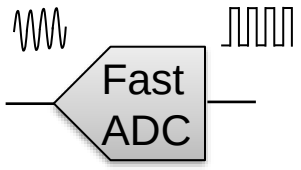
Save everything, including RAW data

Features

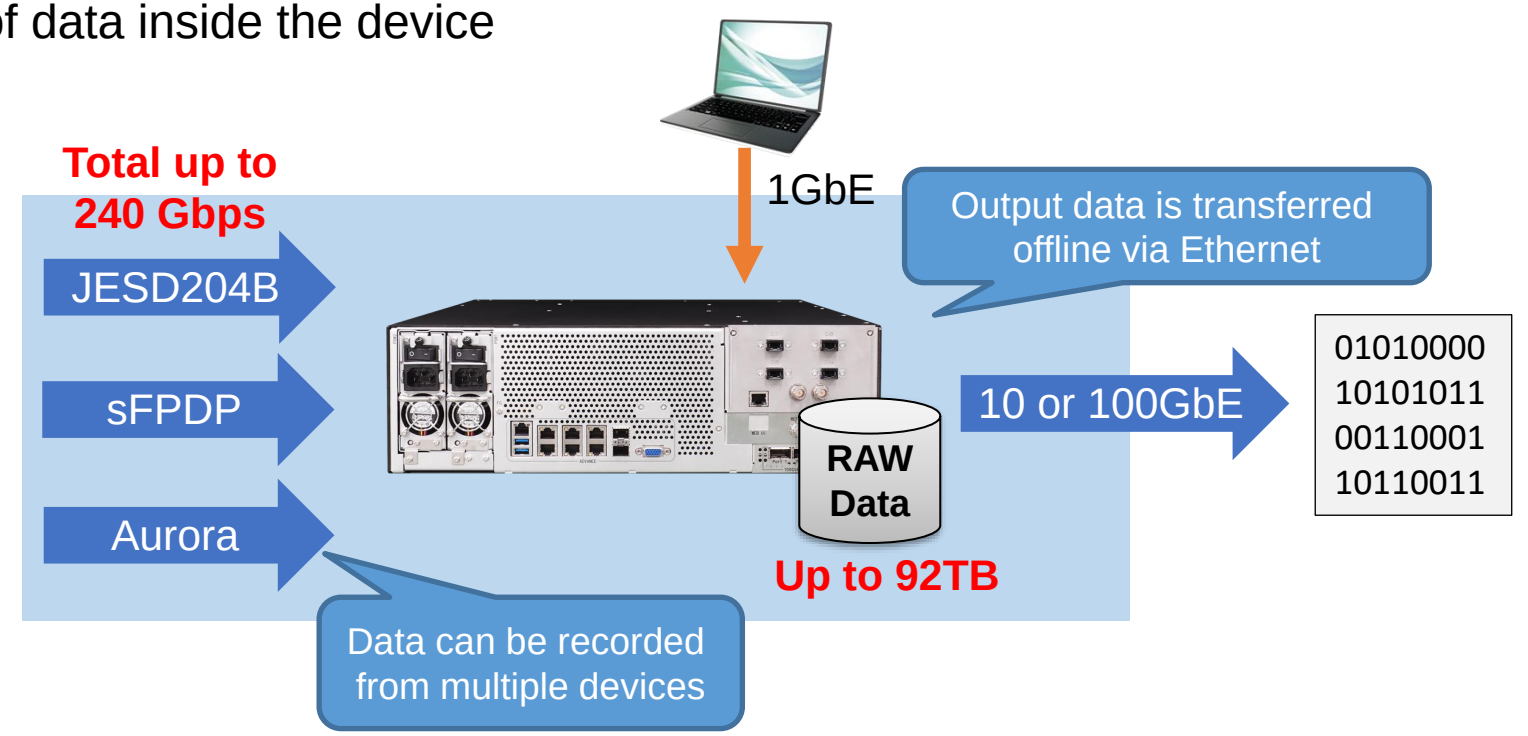
- Support for multiple physical layer protocols enables multiple types of data recording in a single device
- Data recording functions controlled from an external PC
- Recorded data is transferred externally at high speed via 40/100GbE
- Optional real-time signal processing of data inside the device

5G/6G Transmission Data

Radar Transmission Data



Receiver



Case 2: Collected Observation Data Analysis and Monitoring

Integrates multiple types of large data recording

Features

- Simultaneous saving of multiple data types such as GPS with multi-channel connection. Consolidation of data handled by individual devices
- Acquired data is displayed according to sensor type available on request

Aerial Survey Data

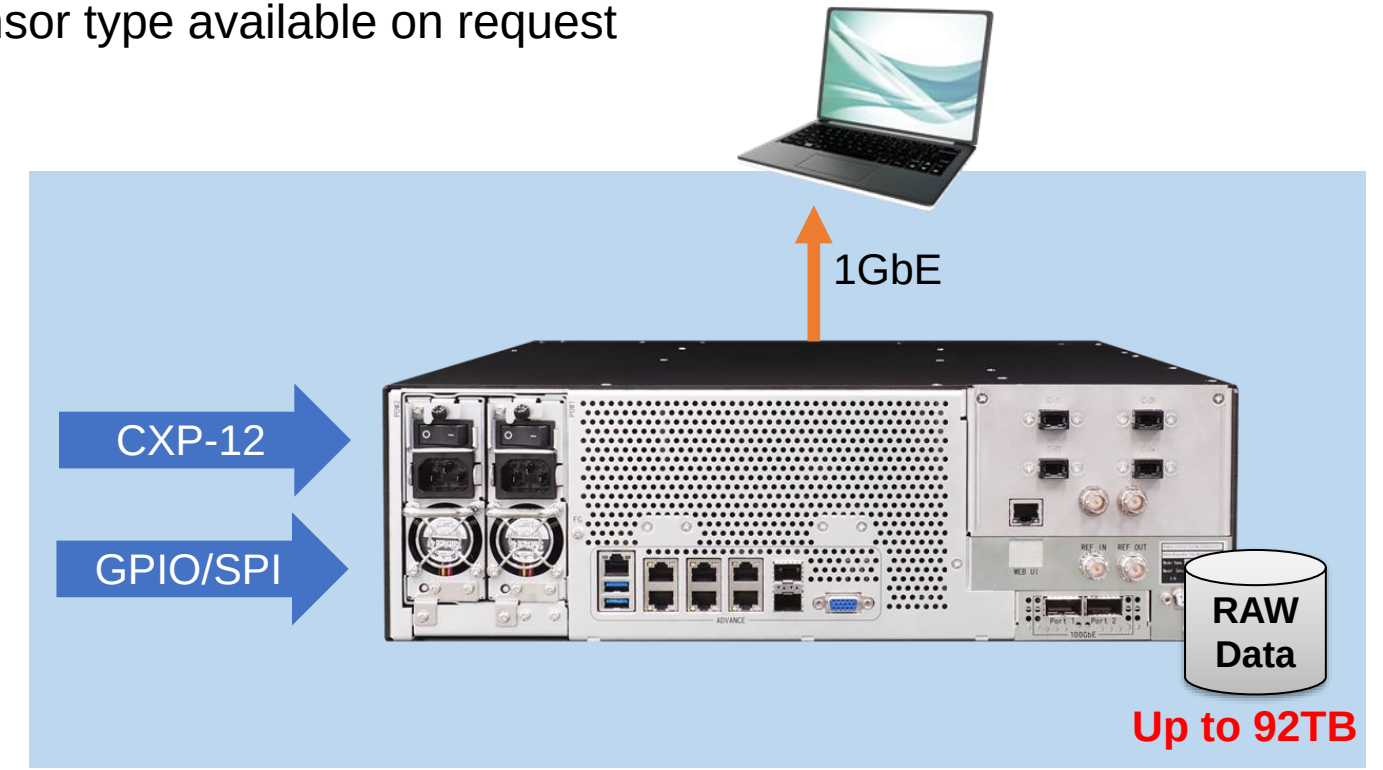
Oceanographic Survey Data

CXP-12 Camera

GPS

Sensor Data
Temperature, humidity

GPS

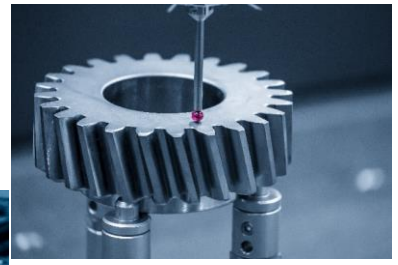


Case 3: Total Inspection by Multi-Camera

Save every high-definition image

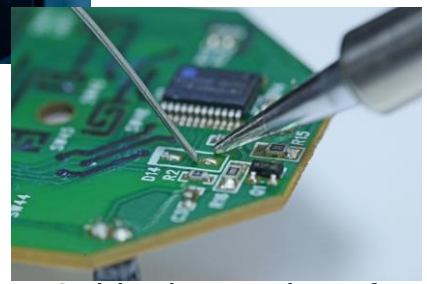
Features

- Stable image saving at high data rates, which is not possible with frame grabber + PC
- Offload processing by FPGA + GPU combination for faster image processing available on request



Measurement of Metal Shapes

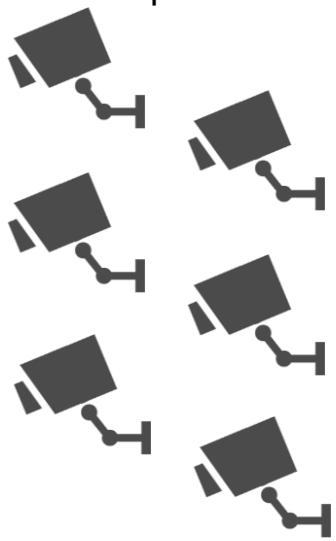
Inspection of Food Appearance

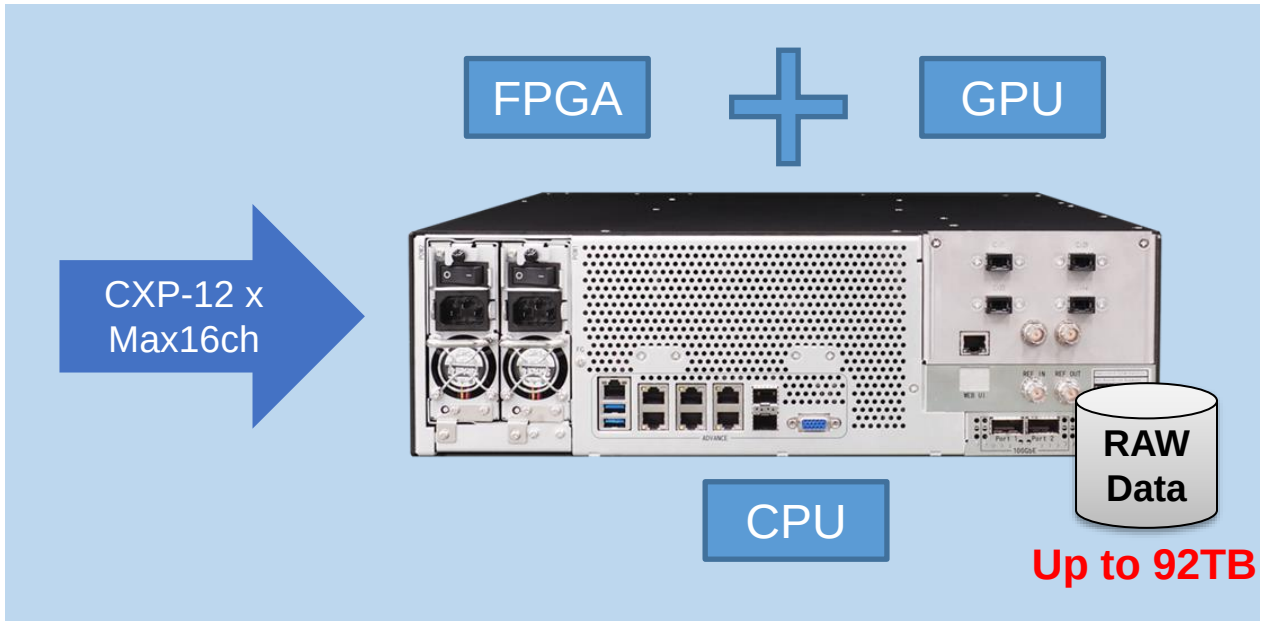


Solder inspection of Mounted Components

CXP-12 Camera

Inspection





Case 4: Rapid Analysis of Massive Images

Dedicated storage accelerates image analysis

Features

- Using high-speed storage to accelerate image analysis
- Up to 12.5 Gbps x16 channels of sFPDP (recording and playback)
- Customer-developed image analysis applications can also run

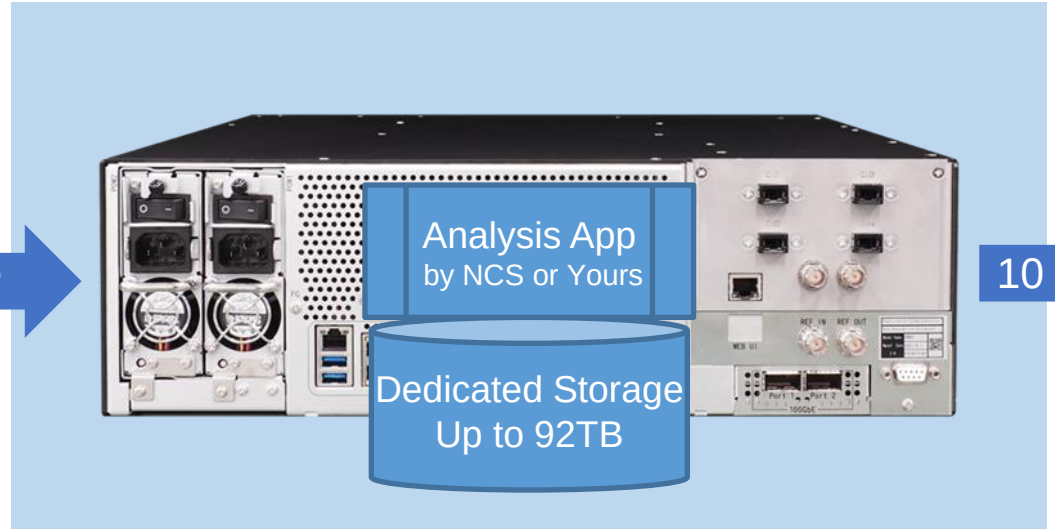
Aerial Survey Data

Radar Transmission Data

Transmission Data

Receiver

sFPDP

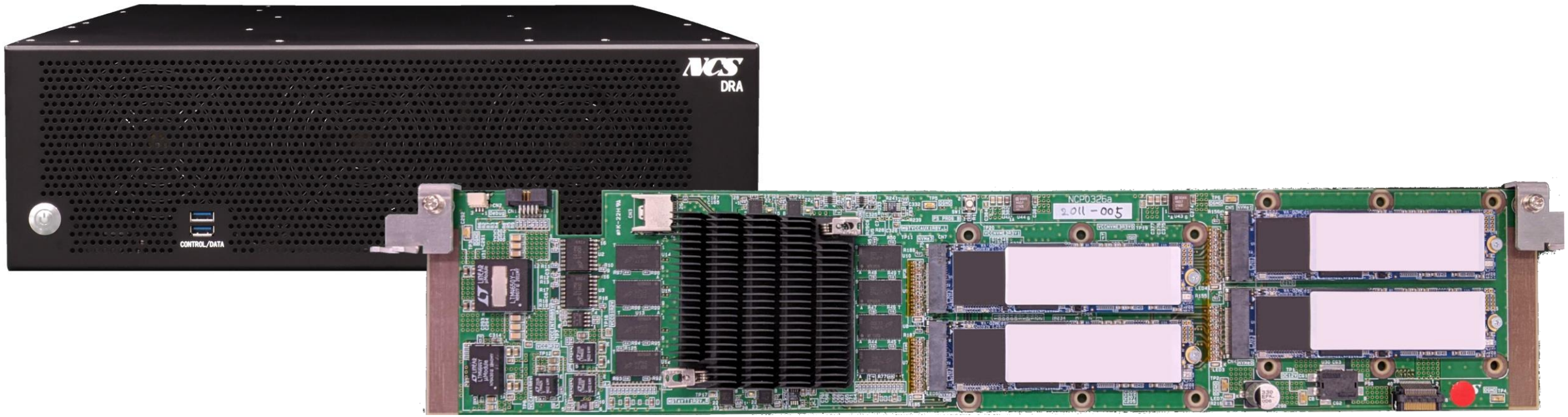


10 or 100GbE

- Analysis Result Data
- Image Files

Technical Point - Storage

- Uses NVMe control and data striping by FPGA. High-speed, stable operation at 30 GB/s is ensured by read/write data without CPU intervention
- Specially designed hardware keeps NVMe at stable operating temperatures
- Scalable capacity selection for different purposes by adding expansion storage



Technical Point - I/O Interfaces

- Standard built-in interfaces:
  - CXP-12 / 6x CXP-12
  - sFPDP(ANSI/VITA 17.3-2018)
  - Aurora 64B/66B v1.3 ～12.5Gbps
  - GPS
  - Sensors for temperature, humidity, etc. (GPIO/SPI)
- Combination support
  - Up to 24ch x 12.5Gbps interface with internal bus and options for mounting combinations of different interfaces and multiple channels
  - Aurora 64B/66B is used in conjunction with our proprietary data stream protocol enabling easy access to data from external devices

Technical Appeal - Customization

- Our recorders provide secure and reliable performance in the most challenging and confidential environments. We can also provide optional custom builds to meet military standard specifications and encryption requirements.

- Customized CPU, FPGA, and GPU configurations available for applications such as image and signal processing

- Includes data monitoring functionality with a basic UI and options available for application-specific customizations

Inquiry

- **We look forward to your inquiries.**
  → Tell us your data processing and display requirements and we'll create a customized solution plan to meet your project needs

Specifications and Certifications

Specifications			
Storage			
Number of memory units	-MEM3 : 3 Units	-MEM4 : 4 Units	-MEM6 : 6 Units
Storage capacity	46 TB	60 TB	92 TB
Maximum data rate (stable operation)	15 GB/s (120 Gbps)	20 GB/s (160 Gbps)	30 GB/s (240 Gbps)
Interface			
External data interfaces	Optical x 24, BNC coaxial cable x 16 (customizable)		
Supported protocols	Serial FPDP, Xilinx Aurora, CXP-12, JESD204B (for ADC), Interlaken		
General information			
Dimensions, Weight, & Power Consumption	132 (H) x 482 (W) x 540 (D) mm, 19 kg, 700W (Typ.)		

Certifications

Our DRA Series data recorders provide secure and reliable performance in the most challenging and confidential environments, making them the ideal solution for a wide range of applications. We can also provide optional custom builds to meet military standard specifications and encryption requirements.

https://www.nippon-control-system.co.jp/