

DRA Series

Ultra-High-Speed Data Recording and Processing Unit

Nippon Control System Corporation

October 2023



Introduction

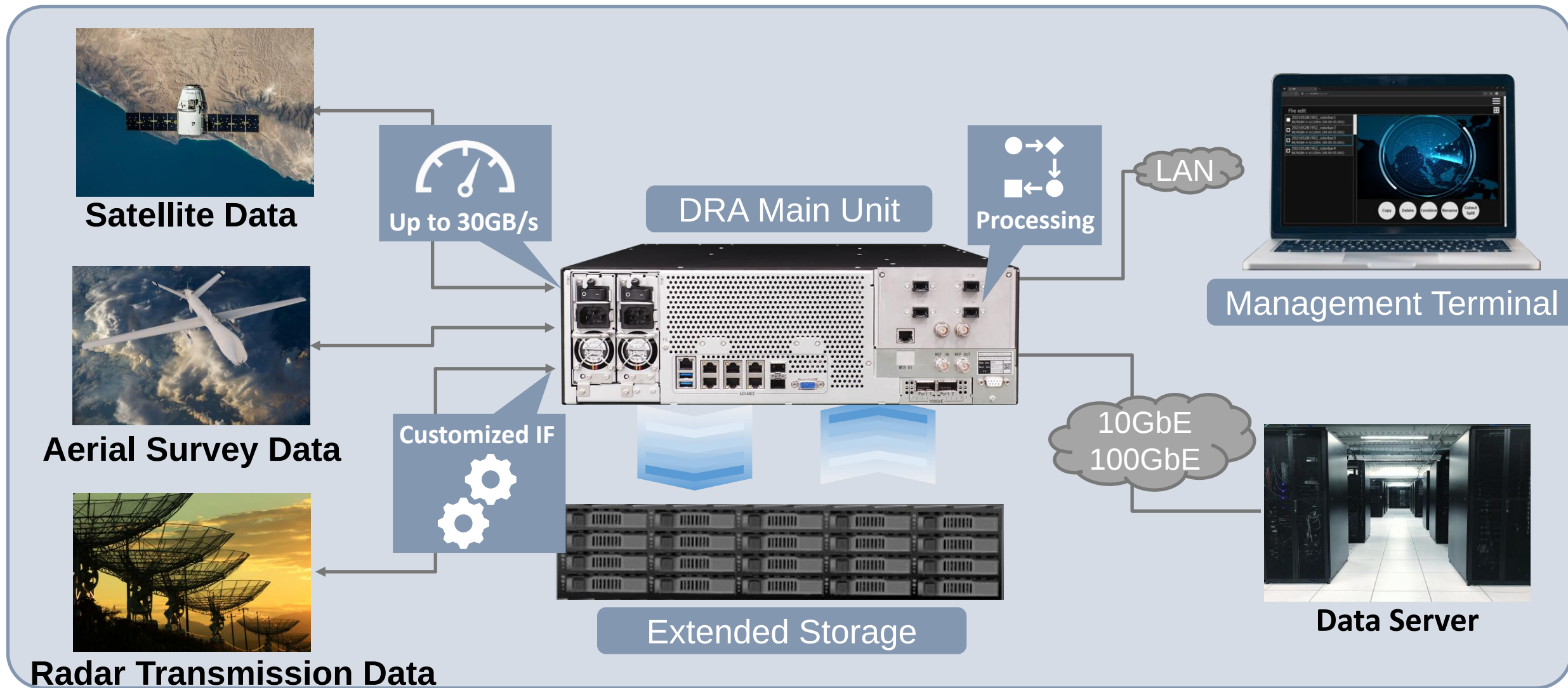
- ◆ DRA Series industry-leading high-performance data recorders can be used in a wide variety of applications, configurations, and use cases
- ◆ NCS provides customized DRA Series data recorder configurations to further enhance performance for specialized user requirements

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



DRA - Basic Configuration

Optimally built with a combination of
our standard components

1. Interface Selection

CXP-12

Serial FPDP

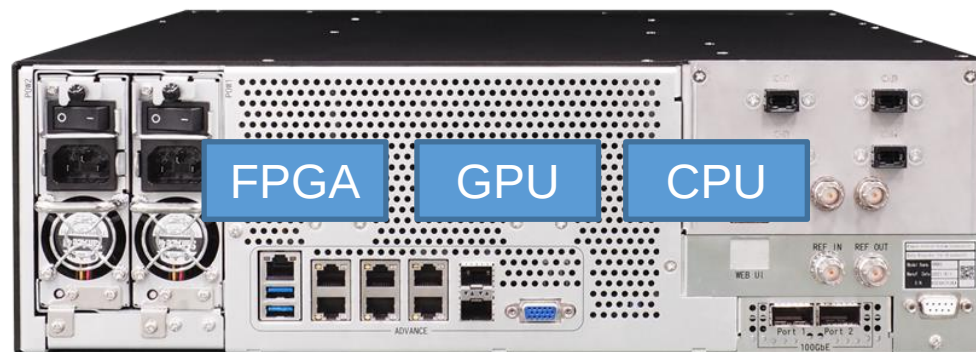
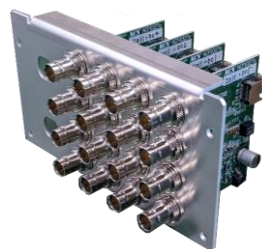
JESD204B

Aurora 64B/66B

GPS

Sensors

Temperature, Humidity, etc.



2. Storage Size Selection

46 TB

60 TB

92 TB

Main
Unit

+128 TB~

Extended
Storage

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

Save everything, including RAW data

Features

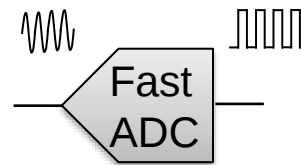
- Support for multiple physical layer protocols enables multiple types of data recording in a single device
- Data recording functions controlled from an external PC
- Recorded data is transferred externally at high speed via 40/100GbE
- Optional real-time signal processing of data inside the device



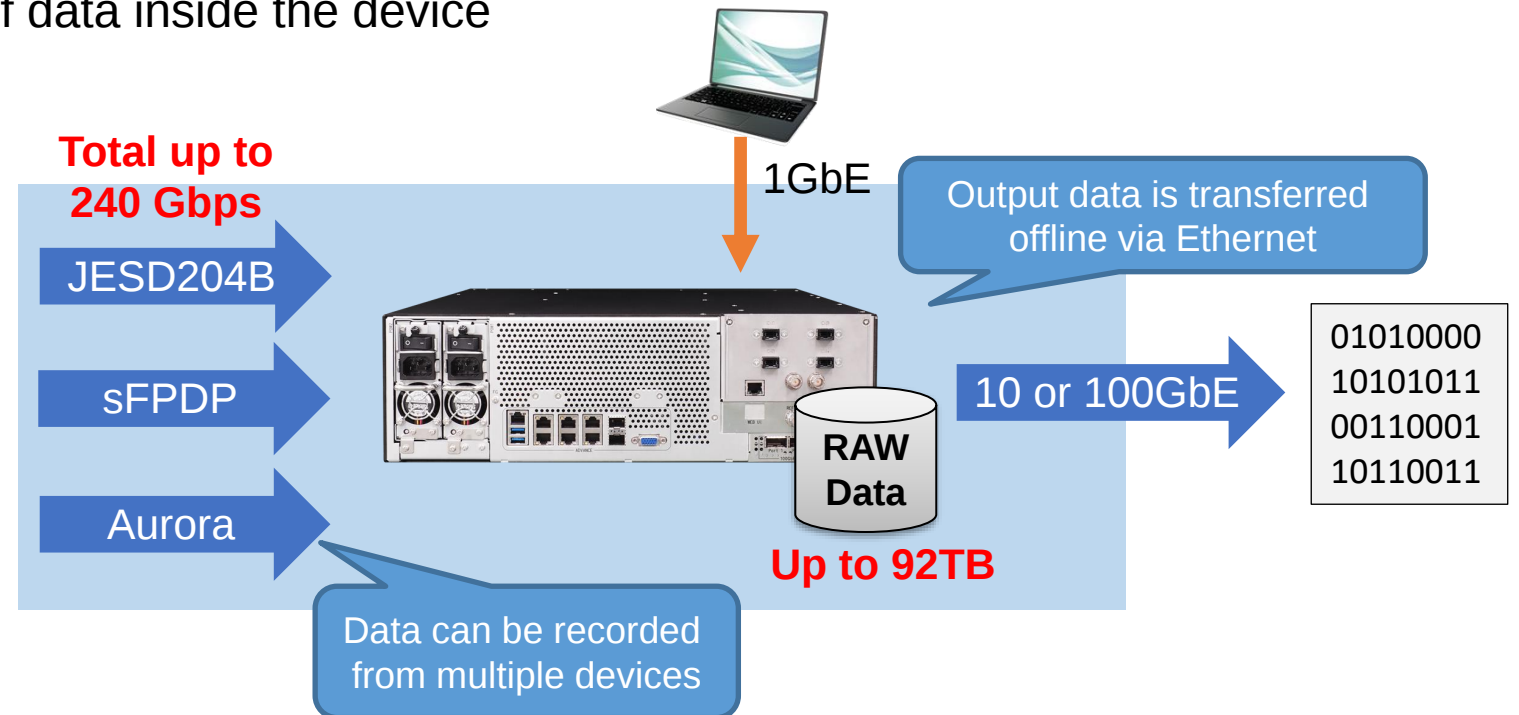
5G/6G Transmission Data



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

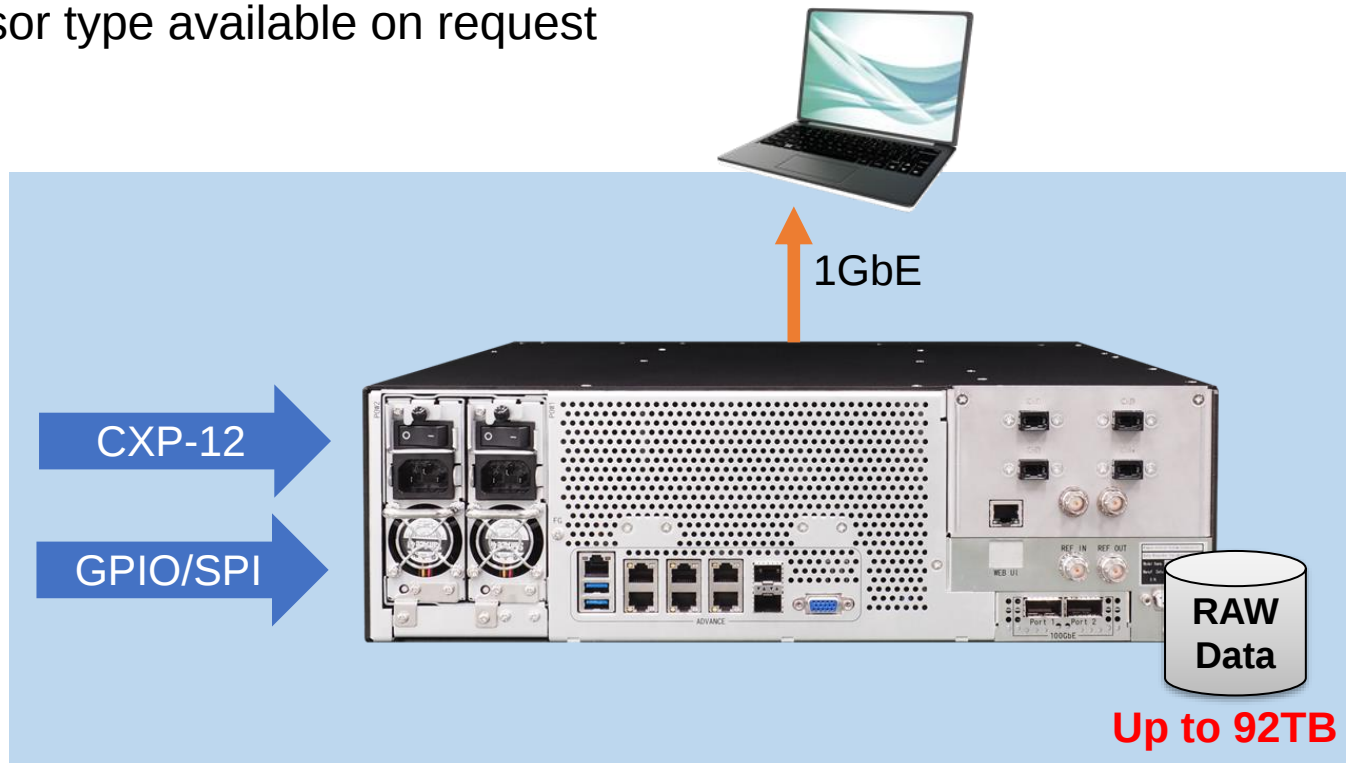


GPS

Sensor Data
Temperature, humidity



GPS

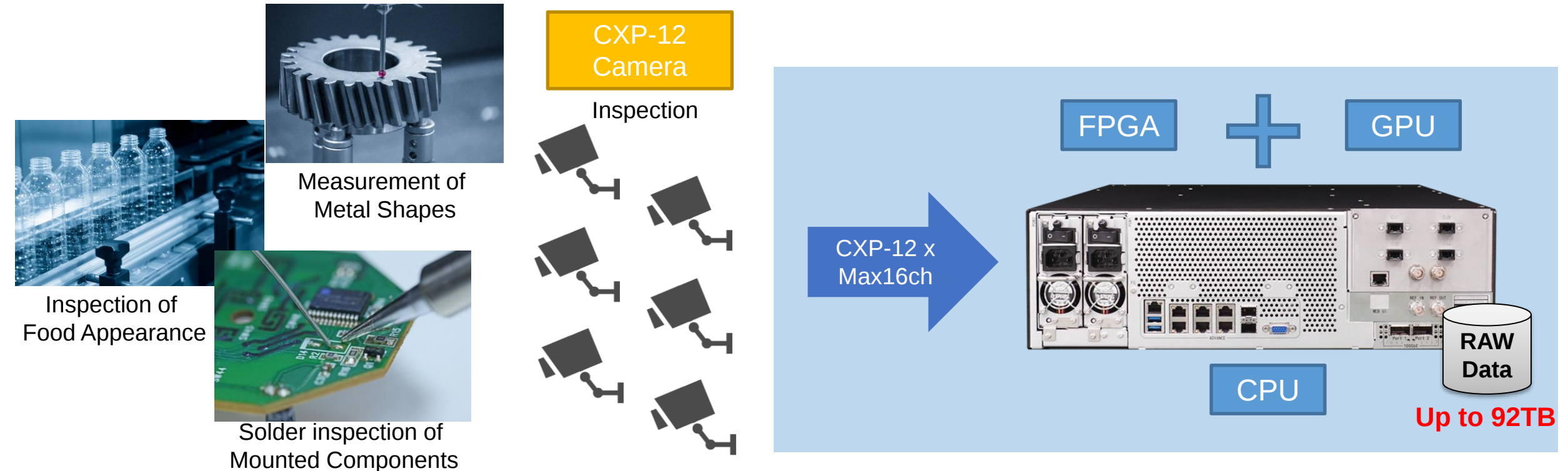


Case 3: Total Inspection by Multi-Camera

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



Case 4: Rapid Analysis of Massive Images

Dedicated storage accelerates image analysis

Features

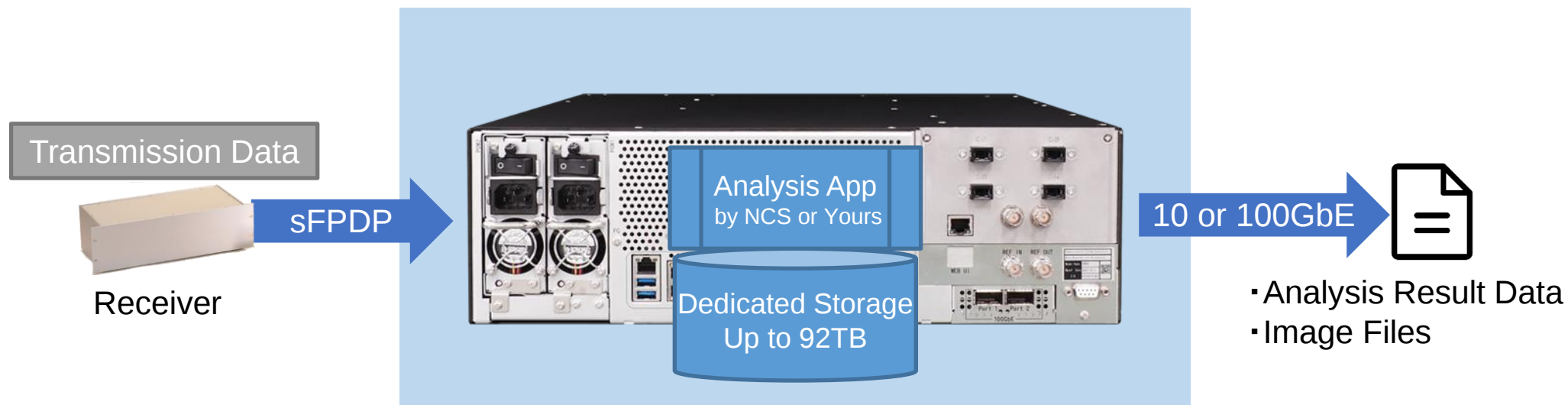
- Using high-speed storage to accelerate image analysis
- Up to 12.5 Gbps x16 channels of sFPDP (recording and playback)
- Customer-developed image analysis applications can also run



Aerial Survey Data



Radar Transmission Data



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.)
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Certifications

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NIPPON CONTROL SYSTEM

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