

General Specifications

FT2SDR01, PC2CKM Dual-redundant Platform for Computer

GS 30A05C10-01EN

OVERVIEW

The dual-redundant platform is a platform for server applications that require high reliability and high availability, in which two computers are redundantly configured using yokogawa own technology. The redundant software running on a computer which yokogawa specifies is provided.

FEATURES

The dual-redundant platform has the following features:

- The two computers that make up the redundancy configuration are treated as one computer on the system. Users do not have to be aware of the two computers that make up the redundant function during plant operation.
- When the active side fails, the standby side switches to the operating side automatically. (Failover)
The active side can be also switched to the standby side manually. (Switchover)
- By equalizing Windows OS and applications of the two computers constantly, between the active and standby sides is switched at high speed (within 1 second).
- There is no data loss since processing continues to run before and after the switch. In addition, communication connection is maintained, so there is no communication error or missing data.
- Software and hardware of dual-redundant platform can be updated while plant operation is continued. However, Windows and application software cannot be updated online.

FEATURE DESCRIPTIONS

A system by using the dual-redundant platform for computer consists of two computers, and they work logically as a single computer.

The two computers have the same IP address. Therefore, other computers do not have to be aware of the redundant operating state of the two computers (which computer is “active”, etc.) . The two computers are accessed as the single configuration.

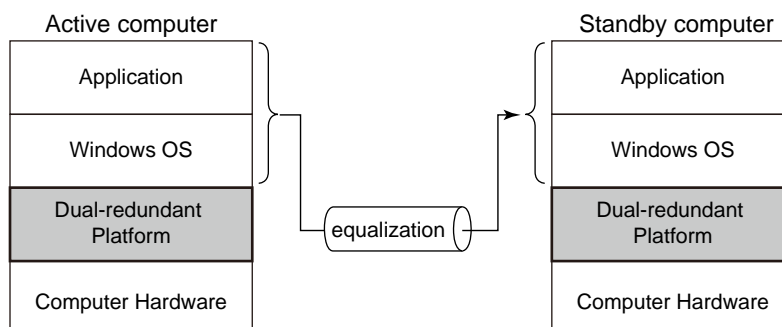
In a configuration using a dual-redundant platform, two computers are connected by a redundancy control network. Engineering data of the computer is downloaded to only the active side computer, and equalized to the standby computer via the redundancy control network.

When the active side computer becomes abnormal, the active right automatically switches over (fails over). Also, manual switching (switchover) is possible. Switching by failover or switchover is performed in a short time (within 1 second), and the components (Vnet/IP stations, controllers of other systems, OPC client, etc.) that access to the computer are not affected by switching. (*1)

The dual-redundant platform can provide tools for engineering of redundancy, monitoring of operation status, and maintenance operations.

*1: When monitoring a failure detected by a dual-redundant platform, a delay may occur even though communication is not interrupted.

The dual-redundant platform for computer stands between computer hardware and OS, and equalizes the active and standby computers in real time. There is no need to be aware of redundancy in the Windows OS and applications running on it.



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■ APPLICABLE APPLICATION

The following Yokogawa IA system products can be applied to the dual-redundant platform.

- Exaopc OPC Interface Package
- Exapilot Standard Operation Efficiency Improvement Package

Operation target is only server application.

The client functions of the above applications cannot be used on dual-redundant platform for computer.

Prepare a computer other than dual-redundant platform for computer to execute client functions, and operate from it for the client.

■ SYSTEM CONFIGURATION

The following is an example of system configuration with Exapilot.

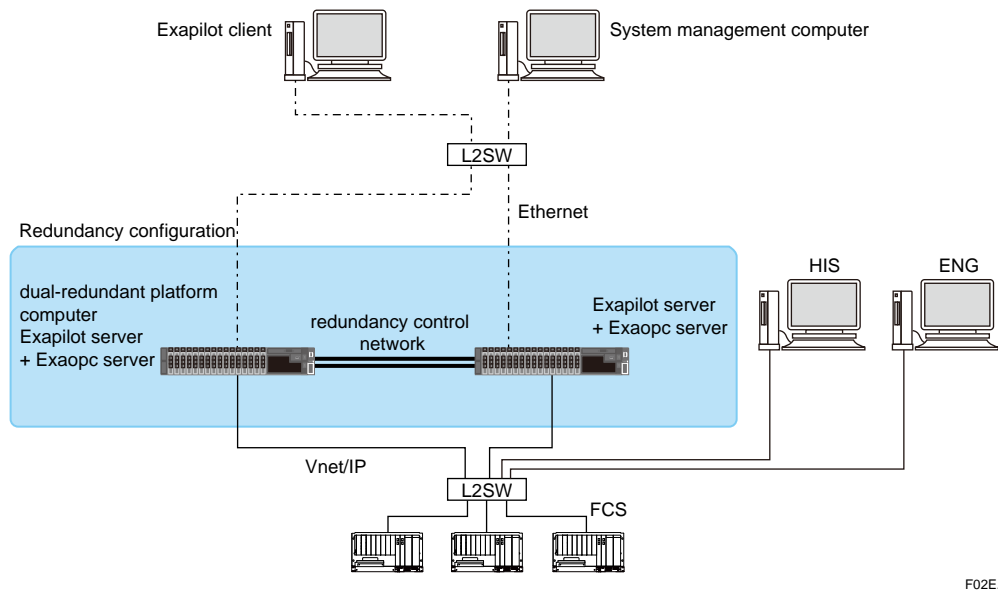


Figure Example of redundant system configuration

System management computer:

In order to perform maintenance work for a dual-redundant platform in remote environment via Ethernet. A computer is needed to manage dual-redundant platform on the network. It can be combined with another computer such as the Exapilot client PC.

On Windows Event Viewer in the system management computer, errors such as hardware failures detected in the dual-redundant platform can be monitored. In addition, Network Management System (NMS) enables integrated monitoring of errors of both other network devices and dual-redundant platforms. For monitoring methods, please contact Yokogawa sales window.

The software license for dual-redundant platform is used by downloading it from the system management computer to the computer for dual-redundant platform.

Redundancy control network:

Two computers of the platform are connected directly by dual-redundant 10 G-bit Ethernet, and the active and standby computers communicate data equalization and mutual health diagnosis.

Ethernet:

It is used for communication with the system management computer for error monitoring as well as communication between the server and client.

Vnet/IP (for error diagnosis):

It is used not only for communicating with other Vnet/IP stations, but also for diagnosing errors between computers for dual-redundant platform.

The Vnet/IP interface card (VI702) is not required because the Vnet/IP communication function is supported by software.

Even for components that do not use Vnet/IP, it is necessary to connect directly to the Ethernet ports for Vnet/IP of the two computers.

■ OPERATING ENVIRONMENT

● Hardware Requirements

The computers used for the dual-redundant platform are limited to yokogawa specified models. For details, please contact Yokogawa sales window.

The Vnet/IP interface card (VI702) is not required.

The specifications of yokogawa specified models are shown below.

1U rack server

Item	Descriptions	Notes
Computer	Dell PowerEdge R340XL Base	Yokogawa specified model
CPU	Intel Xeon E-2176G 3.7GHz, 6C/12T	C: Core, T: Thread
Memory	16 GB ECC	10 GB available as Windows execution environment
Storage	600 GB 10K RPM SAS	Up to 300 GB available as Windows execution environment
RAID	PERC H330 RAID Controller	RAID-1
On-board Ethernet	1 G-bit Ethernet: 2 ports	For Ethernet. Only one port is available.
Expansion Ethernet	10 G-bit Ethernet: 2 ports	For redundancy control network
	1 G-bit Ethernet: 2 ports	For Vnet/IP (for error diagnosis)
	1 G-bit Ethernet: 2 ports	For Ext-Ethernet 1, 2
Optical drive	DVD+/-RW	
Power supply unit	Hot plug power supply 350 W	Dual-redundant power supply is optional.

2U rack server

Item	Descriptions	Notes
Computer	Dell PowerEdge R740XL Base	Yokogawa specified model
CPU	Intel Xeon Silver 4110 2.1 GHz, 8C/16T	C: Core, T: Thread
Memory	16 GB ECC	10 GB available as Windows execution environment
Storage	600 GB 10 RPM SAS	Up to 300 GB available as Windows execution environment
RAID	PERC H330 RAID Controller	Hard RAID (RAID-1)
On-board Ethernet (Daughter card)	1 G-bit Ethernet: 2 ports	For Ethernet. Only one port is available.
	1 G-bit Ethernet: 2 ports	For Ext-Ethernet 1, 2
Expansion Ethernet	10 G-bit Ethernet: 2 ports	For redundancy control network
	1 G-bit Ethernet: 2 ports	For Vnet/IP (for error diagnosis)
	1 G-bit Ethernet: 2 ports	For Ext-Ethernet 3, 4 (option)
Optical drive	DVD+/-RW	
Power supply unit	Hot plug power supply 750 W	Dual-redundant power supply is optional.

Notes

- A dual-redundant platform for the computer works as a server. If the function to display the screen is needed, use Remote Desktop Connection from the system management computer.
- USB devices such as USB memory cannot be used.
- Serial communication devices such as RS-232C/RS-485 cannot be used. If a serial communication device is required to use, connect an Ethernet converter between the device and the computer.

● Software Requirements

A redundant configuration can be built using a dual-redundant platform with Windows Server 2019 Standard or Windows Server 2016 Standard, and two licenses of the Windows OS are required.

Target software

The following software products are applicable for dual-redundant platform. Refer to the each product GS for the supported revision.

- Exaopc
- Exapilot

The software licenses for Exaopc and Exapilot require one license each, even in a redundant configuration. To apply dual-redundant platform to the above products, please contact Yokogawa sales window.

■ MODEL AND SUFFIX CODES

When using the dual-redundant platform, a software medium (PC2CKM) and a versatile license (FT2SDR01) for this platform are needed. In addition, a product-specific software media and its license are required.

Software Medium for Dual-redundant Platform for Computer

		Description
Model	PC2CKM	Dual-redundant Platform for Computer
Suffix Codes	-C	Supplied medium: DVD
	1	Always 1
	1	English version

Dual-redundant Platform Versatile License

		Description
Model	FT2SDR01	Dual-redundant Platform Versatile License
Suffix Codes	-P	Supplied medium: Paper
	1	Always 1
	1	English version

When purchasing a Dual-redundant Platform Versatile License (FT2SDR01), a license certificate will be delivered with a license number. Using this license number and PC-specific information (service tag) of the dual-redundant platform computer, a license file can be obtained.

The license certificate cannot be reissued, so please keep it safe.

■ ORDERING INFORMATION

Specify the model and suffix codes.

When using the dual-redundant platform to Unified Gateway Station (UGS2), Collaborative Information Server (CI Server), or FAST/TOOLS, the versatile license above is not required.

It is necessary to subscribe to the maintenance service of each IA system product. Different products run different methods of maintenance, prices, and service contents. For details, please contact Yokogawa sales window.

The product is supplied without the manufacturer's warranty costs. The Dual-redundant Platform for Computer requires both a Product Maintenance License (PML) and Lifecycle Agreement from the date of handover as agreed mutually by customer and Yokogawa. For more details, refer to the following GS respectively.

- Product Maintenance License (GS 30A01F20-01EN)
- Lifecycle Agreement "Sustainable Plan" (GS 43D02H21-16EN)

■ TRADEMARK ACKNOWLEDGMENT

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