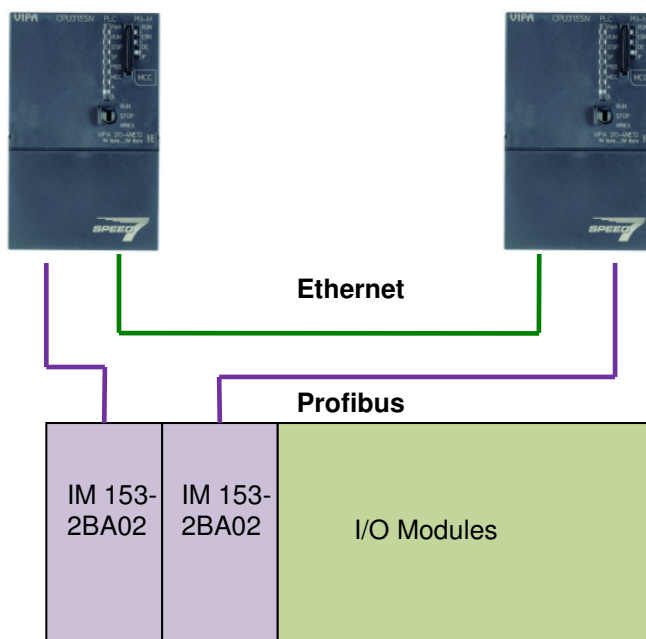


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To:	VIP A distributors and branch offices

Redundancy with SPEED7 Ethernet CPU's

Introduction

This note describes how to configure a redundancy application using two VIP A Speed7 CPU's Type 315-4NE12 in combination with a redundant Profibus Slave IM 153-2BA02 from Siemens.



Necessary components:

1	SPEED7 CPU VIPA 315 or 317-4NE12	
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1	6ES7153-2AR03-0XA0	Redundancy Kit ET200M
	Including:	
	1 x 6ES7195-7HD10-0XA0	Base_Backplane
	2 x 6ES7153-2BA02-0XB0	IM153-2HF
1	6ES7862-0AC01-0YA0	Redundancy Software V1.2 on CD
1	6ES7195-7HB00-0XA0	ET200 Base for two 40mm modules
1	6ES7195-7HC00-0XA0	ET200 Base for one 80mm module
1	6ES7195-1GA00-0XA0	DIN RAIL for 4 modules ET200, 482 mm
1	6ES7195-1GF30-0XA0	DIN RAIL for 5 modules ET200, 530 mm

Working principle:

Software redundancy is a software package used to create fault tolerant controller based on the software, but based on standard components. The PLC consists of the CPU 31x-4NE12 VIPA or Siemens 318 and can be used VIPA and Siemens jointly. The redundant ring for the comparison of the two redundant CPUs communication is done via Ethernet. The periphery is connected to the stations of type ET 200M with redundant interface modules IM 153-2, via two redundant PROFIBUS DP.

Application:

The software package allows you to create fault-tolerant systems with low performance in terms of switching speed and dynamics, since the switching time in these applications can be more than a second. During the switch, the outputs are frozen in the state they were in prior to switching.

Modules to be used

Designation	Reference number
2 x IM 153-2 DP slave interface module	1P6ES7 153-2BA02-0XB0
All digital and analog modules valid for ET 200M	
Counter module FM350	6ES7 350-1AH0x-0AE0
CP 341 (20 mA TTY, RS232, RS422/485)	6ES7 341-1xH01-0AE0

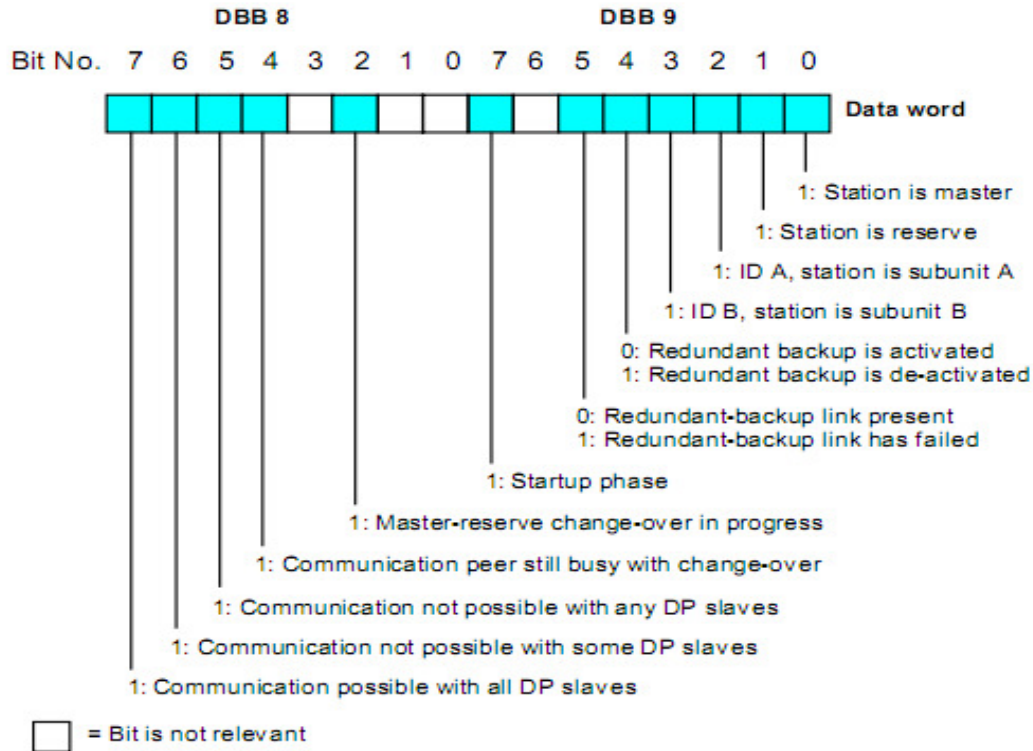
In the future, more modules can be available.

Please note:

The ET 200M station type must always be done with active bus modules (6ES7 195-7HB00-0XA0 or 6ES7 195-7HC00-0XA0), even though the functions “remove” and “insert” periphery modules are not possible during the time execution of the CPU, for operational reasons.

Short explication of the PLC Programm

The programs are identical in both CPUs. The CPUs know who is a master or reserve at any time by two bits of state. These bits (0 and 1) are in the Statusword (DBW 8) of the instance DB of redundancy block FB 101:



In the routine of OB35 where you make the call to redundancy block FB 101 is defined the data of the application that will be redundant (DBs, marker areas, outputs ...) for instance:

```

CALL "SWR_ZYK" , DB5           // Call FB 101 'SWR_ZYK' with instance DB
DB_WORK_NO :=DB1             // SWR work DB
CALL_POSITION:=TRUE          // Call_Position = TRUE at the start of the redundant program
RETURN_VAL :=MW6             // Return value of the block
EXT_INFO :=MW8               // Extended information

// Start of the redundant program
U DB5.DBX 9.1                // Check if the station is master
SPB END

CALL "Test-FB" , "Test-DB 1" // FB10 / DB10

CALL "Test-FB" , "Test-DB 2" // FB10 / DB11

L MB 20
+ 1
T MB 20
T AB 0

// End of the redundant program
END: NOP 0

CALL "SWR_ZYK" , DB5           // Call FB 101 'SWR_ZYK' with instance DB
DB_WORK_NO :=DB1             // SWR work DB

```

```
CALL_POSITION:=FALSE // Call_Position = FALSE at the end of the redundant program
RETURN_VAL :=MW10 // Return value of the block
EXT_INFO :=MW12 // Extended information
```

In the OB100 is called the initialization block FC100 software redundancy. Here are defined work DBs, redundant PAA areas PAA, redundant memory areas, lengths of these areas, and so on.

Important: Each time you make a change here, you must transfer to the two CPUs the hardware configuration and the application program, then supply will be switch off / on on both CPUs.

Boot sequence

You must transfer the program to both CPUs program, hardware and configuration of NetPro, then remove power to both CPUs, put them in Run state, and switch on power supply again.

Your VIPA ExportTeam