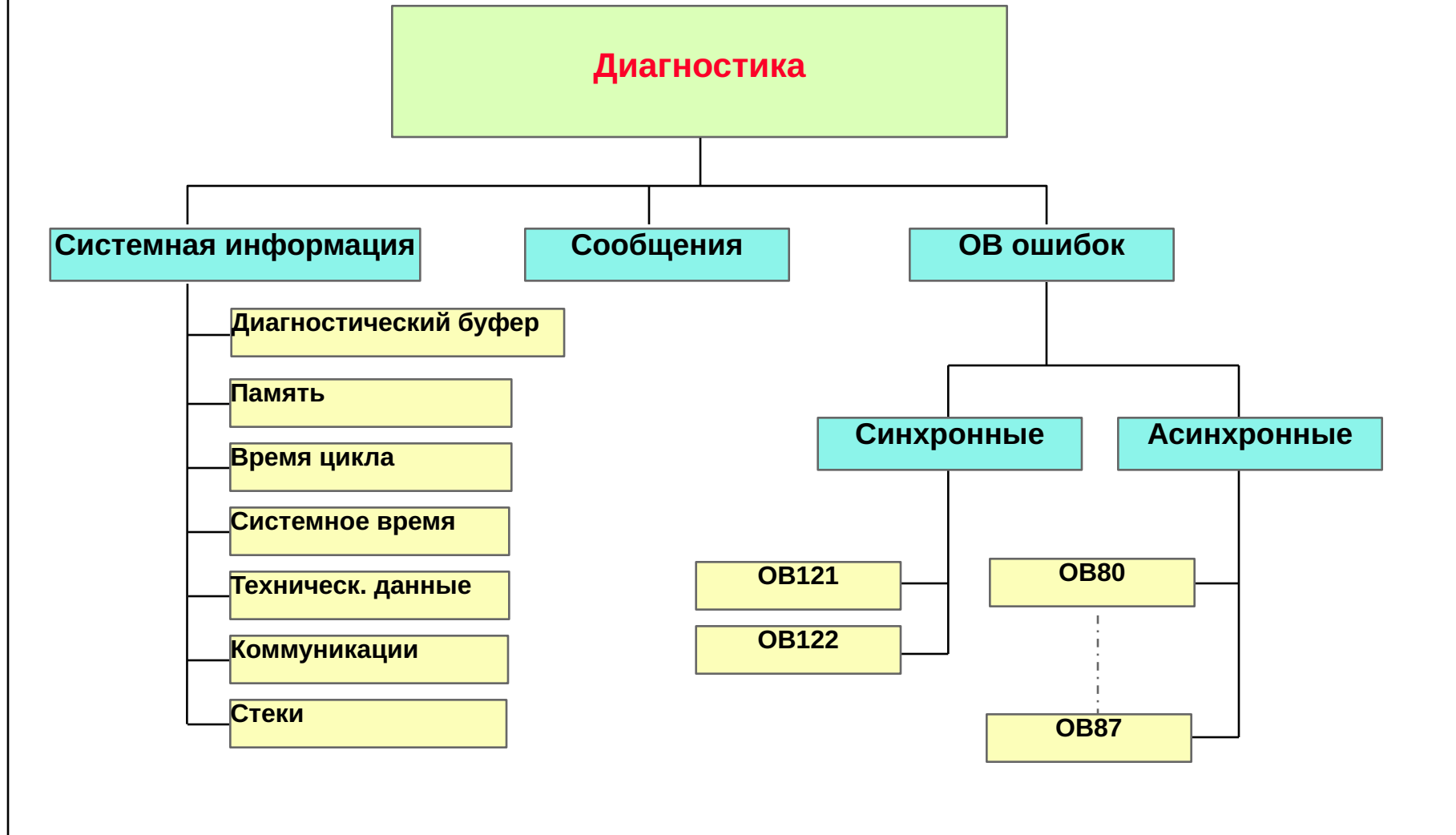


Системная информация, поиск ошибок, диагностика



Системная информация - обзор

SIMATIC Manager - [Accessible Nodes]

File Edit Insert **PLC** View Options Window Help

Accessible Nodes

- Access Rights...
- Download
- Upload
- Upload Station
- Manage MZ System...
- Display Accessible Nodes
- CPU Messages...
- Display Force Values
- Monitor/Modify Variables
- Module Information...**
- Operating Mode...
- Clear/Reset...
- Set Date and Time...
- Save RAM to ROM...
- Download to EPROM Memory Card on...
- Compare Block Online/Offline...
- Assign PROFIBUS Address...
- Assign PG/PC
- Remove PG/PC Assignment
- Update CPU Operating System...
- Diagnose Hardware

Module Information - CPU314

Path: [Accessible Nodes\MPI = 2 (direct)] CPU Operating Mode: RUN
 Status: OK

Time System	Performance Data	Communication	Stacks
General	Diagnostic Buffer	Memory	Scan Cycle Time

Description: CPU314 System ID: SIMATIC 300

Version:

Order No./Description	Component	Version
6ES7 314-1AE01-0AB0	...	7

Rack: 0 Address: ...
 Slot: 2 Module Width: 1

Status: Module present and OK.

Close Update Print... Help

Displays the state of the currently selected module (diagnostic buffer, memory, scan cycle times, stacks).

INFO_T1D



Функция "Module Information": "Performance Data"

Path: Project\Station1\CPU_Conveyor1 CPU Operating Mode: RUN
Status: OK

General Diagnostic Buffer Memory Scan Cycle Time
Time System Performance Data Communication Stacks

Memory Configuration

Work Memory: 24576 Bytes
Integrated Load Memory: 40960 Bytes
Maximum Slot-In Load Memory: 524288 Bytes

Functional Capability

Blocks...

Address Areas:

Address Type	Number	Area From
Process Image Inputs	1024 (Bit)	I0.0
Process Image Outputs	1024 (Bit)	Q0.0
Bit Memory	2048 (Bit)	M0.0
Timers	128	T0
Counters	64	C0
Local Data	1536 (Byte)	

Close Update Print...

... в Simatic Manager:
• Папка Blocks
-> Object Properties



Properties - Block Container Offline

General Special

Memory Space

Size in Load Memory: 656 Bytes
Size in Work Memory: 370 Bytes

Number of Blocks

OB:	1	SFB:	0
DB:	2	SFC:	0
FB:	2	UDT:	0
FC:	0	VAT:	2

OK Cancel Help

Режим "Performance Data": Blocks

Blocks [X]

User Blocks

OB Number: 13 Max. Length: 8228 Bytes

No.	Function
OB1	Free Cycle - Start Event: Startup, End ...
OB10	Time-Of-Day Interrupt - Start Event: Ti...
OB20	Time-Delay Interrupt - Start Event: Timer ...
OB35	Cyclic Interrupt - Default Time Interv...
OB40	Hardware Interrupt - Start Event: Interr...
OB100	Complete Restart
OB80	Time Error
OB81	Power Supply Failure
OB82	Diagnostic Interrupt
OB85	Priority Class Error
OB87	Communication Error
OB121	Programming Error
OB122	Access Error

FC Number: 128 Max. Length: 8228 Bytes

FB Number: 128 Max. Length: 8228 Bytes

DB Number: 127 Max. Length: 8228 Bytes

System Blocks

SFC Number: 36

No.	Name	Symbol Comment
SFC0	SET_CLK	Set System Clock
SFC1	READ_CLK	Read System Clock
SFC2	SET_RTM	Set Run-Time Meter
SFC3	CTRL_RTM	Start/Stop Run-Time ...
SFC4	READ_RTM	Read Run-Time Meter
SFC20	BLKMOV	Direct Word Move
SFC21	FILL	Fill (Initialize a Memory)

SFB Number: 0

No.	Name	Symbol Comment
-----	------	----------------

Close Print... Help

Функция "Module Information" : "Memory"

The screenshot shows the 'Module Information - CPU314' window with the following details:

- Path:** Project\Station1\CPU_Conveyor1\S7 Program(1)
- CPU Operating Mode:** RUN
- Status:** OK
- Navigation Tabs:** Time System, Performance Data, Communication, Stacks, General, Diagnostic Buffer, Memory (selected), Scan Cycle Time.
- Work Memory (Read/Write Memory (RAM)):**
 - Maximum: 24576 Bytes
 - Used: 980 Bytes
 - Free: 23596 Bytes
 - Usage: 4%
- Load Memory (Read/Write Memory (RAM) and Read-Only Memory (ROM)):**
 - Read/Write Memory (RAM):
 - Maximum: 40960 Bytes
 - Used: 1634 Bytes
 - Free: 39326 Bytes
 - Usage: 4%
 - Read-Only Memory (ROM):
 - Maximum: 0 Bytes
 - Used: 0 Bytes
 - Free: 0 Bytes
- Buttons:** Compress, Close, Update, Print..., Help.



Функция "Module Information": "Time System"

Module Information - CPU314

Path: [Project\Station1\CPU_Conveyor1\S7 Program(1)] CPU Operating Mode: RUN
Status: OK

General		Diagnostic Buffer		Memory		Scan Cycle Time	
Time System		Performance Data		Communication		Stacks	
Clock:				Clock Synchronization:			
Time on Module:	10:00:04 am	Interval	Master/Slave				
Date on Module:	05/18/98	in PLC:	---				
Correction Factor:	0	on MPI:	---				
Resolution:	1 ms	on MFI:	---				
Time-Of-Day Format:	BCD						
Real-Time Clock:	Present						
Run-Time Meter:							
No.	Elapsed Hours	Status	Overflow				
0	0	Not Running	No				

Buttons: Close, Update, Print..., Help

... в Simatic Manager:
PLC -> Set Date and Time



Set Date and Time

Path: [Project\Station1\CPU_Conveyor1\S7 Program(1)]

Date and Time on:

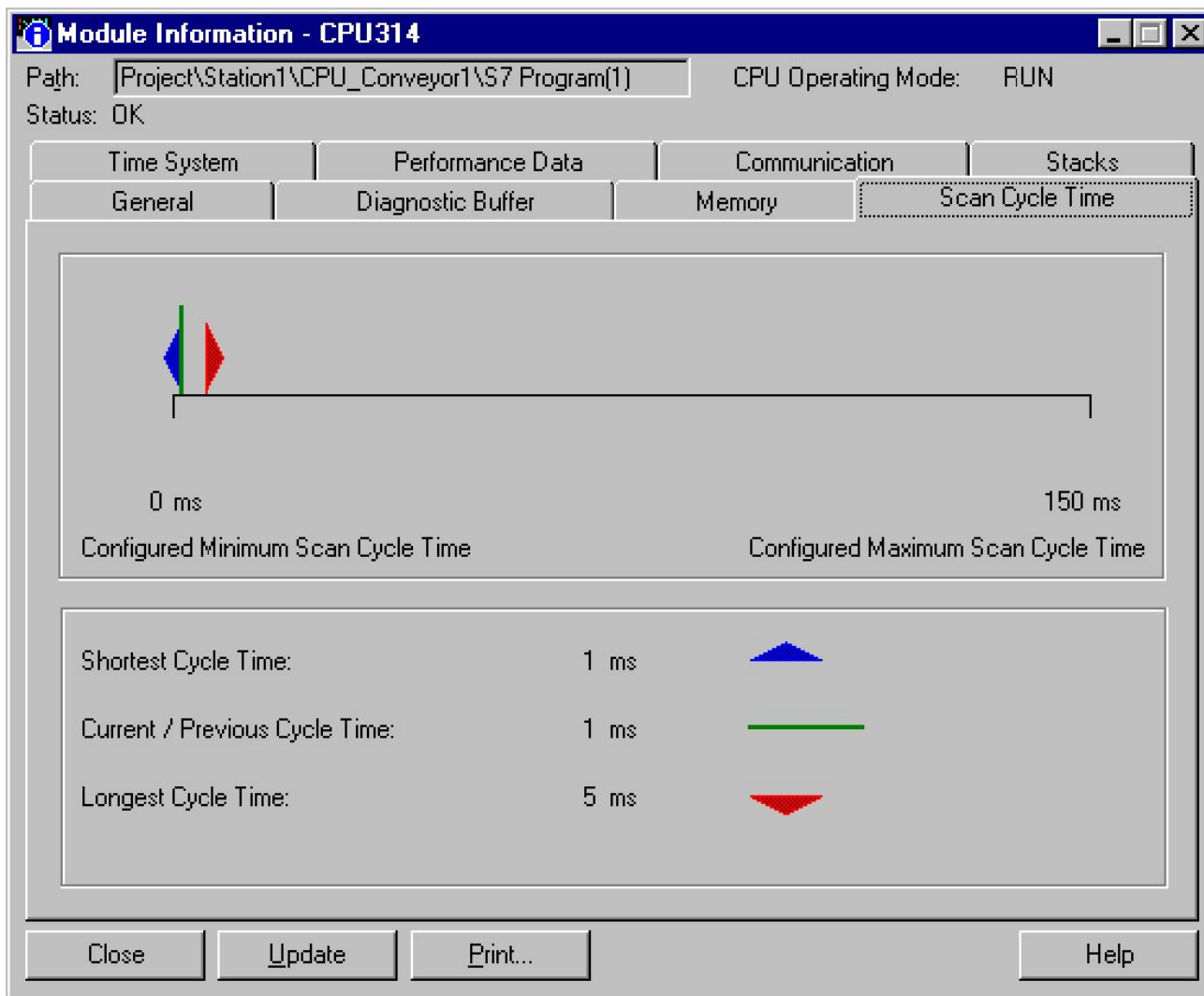
	PG/PC	Module
Time:	11:02:29 am	10:01:23 am
Date:	05/18/98	05/18/98

Use Settings from Programming Device/PC

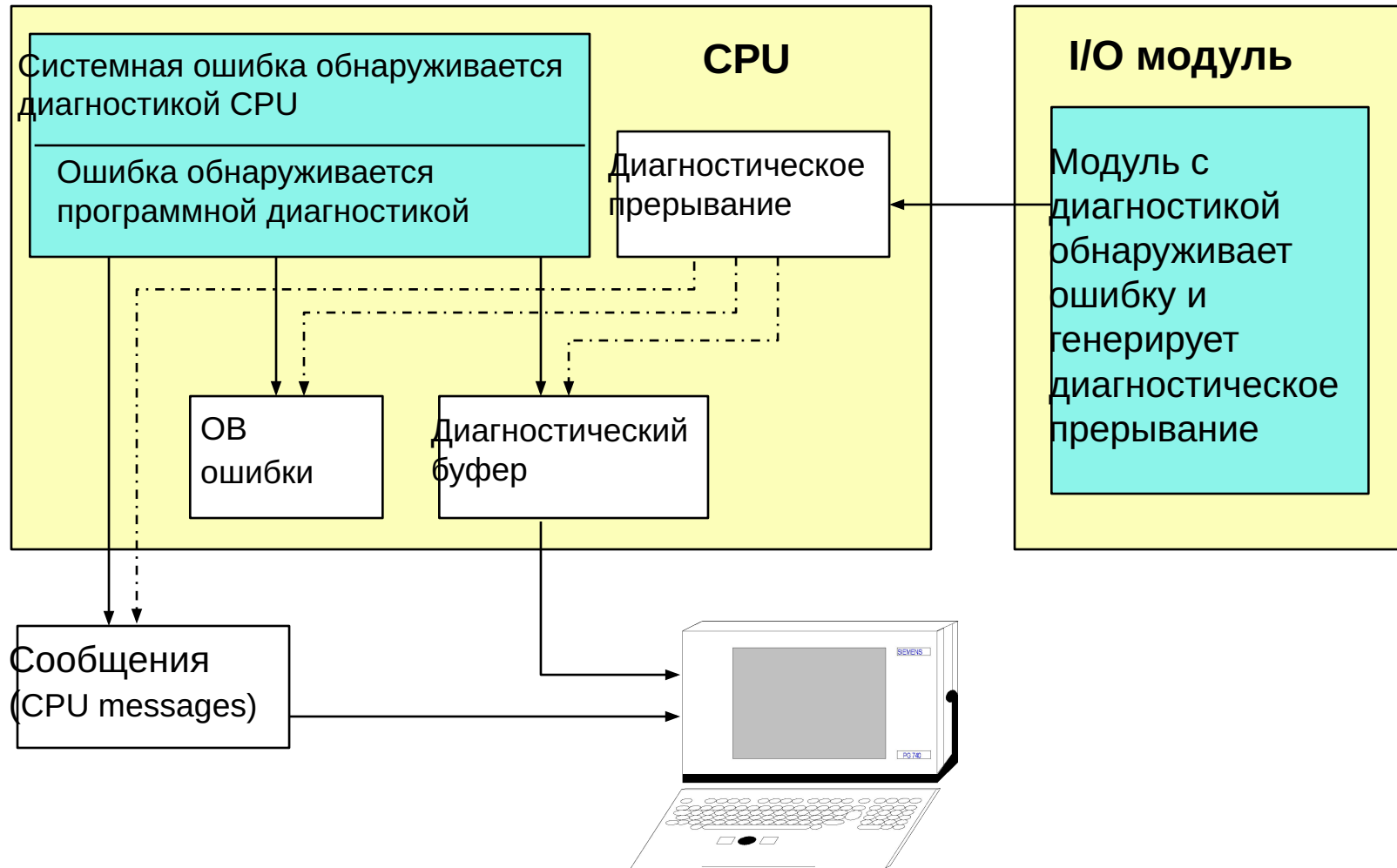
Buttons: Apply, Cancel, Help



Функция "Module Information": "Scan Cycle Time"



Системная диагностика - обзор



Функция "Module Information": "Diagnostic Buffer"

Module Information - CPU314

Path: CPU Operating Mode: RUN
 Status: OK

Time System | Performance Data | Communication | Stacks
 General | **Diagnostic Buffer** | Memory | Scan Cycle Time

Events: Display All Entries (may affect the scan cycle time)

No.	Time	Date	Event
1	09:56:04:855 am	05/07/98	Mode transition from STARTUP to RUN
2	09:56:04:854 am	05/07/98	Request for manual complete restart
3	09:56:04:833 am	05/07/98	Mode transition from STOP to STARTUP
4	09:43:12:303 am	05/07/98	STOP caused by programming error (OB not loaded or ...
5	09:43:12:303 am	05/07/98	Area error when reading
6	08:05:19:645 am	05/06/98	Mode transition from STARTUP to RUN
7	08:05:19:644 am	05/06/98	Request for automatic complete restart
8	08:05:19:624 am	05/06/98	Mode transition from STOP to STARTUP

Details on Event: 1 of 10 Event ID: 16# 4302

Mode transition from STARTUP to RUN
 Startup information:
 - Startup without modified system configuration
 - No difference between setpoint and actual configuration
 - Time for time stamp at the last backed up power on
 - Single processor operation

Save As... | Open Block | Help on Event

Close | Update | Print... | Help

Функция “Module Information” : “Stacks”

Module Information - CPU314

Path: CPU Operating Mode: STOP
 Status: OK

General Diagnostic Buffer Memory Scan Cycle Time
 Time System Performance Data Communication Stacks

B Stack:

Block	Symbol	1st DB	2nd DB
OB1	---	---	---
FC40	---	---	DB1

[Stack...] [Stack...] Nesting Stack... **Open Block**

Close Update Print...

LAD/STL/FBD - [Project\Station1\CPU_Conveyor1\...FC40 - <Online>]

File Edit Insert PLC Debug View Options Window Help

Network 1: Title:
 Comment:

```

CALL "FB_PLANT_ON" , "DB_PLANT_ON"      FB 1
IN0 :=128
IN1 :=129
IN2 :=130
OUT3:=MW130
CALL "FB_PLANT_ON" , DB2                FB 1
IN0 :=256
IN1 :=257
IN2 :=258
OUT3:=MW230
CALL "FB_PLANT_ON" , DB3                FB 1
IN0 :=512
IN1 :=513
IN2 :=514
OUT3:=MW150
  
```

Press F1 for help Connected IEC 1.1 Insert



I - CTeK

Module Information - CPU314

Path: CPU Operating Mode: STOP
 Status: OK

General Diagnostic Buffer Memory Scan Cycle Time
 Time System Performance Data Communication Stacks

B Stack:

Block	Symbol
OB1	...
FC40	...

I Stack...

I Stack: Register Contents in Priority Class (OB1)

Register Values at Point of Interruption

Accumulator 1: 0000 0082
 Accumulator 2: 0000 0081
 Accumulator 3:
 Accumulator 4:

Display Format:

Addr. Register 1: 0.0
 Addr. Register 2: 0.0

Display Format:

Status Word: BR CC1 CC0 OV OS OR STA RLD FC
 0 1 0 0 0 0 0 0 0

Point of Interruption

Interrupted Block: FC 40

Continue in Block: FC 40

Priority Class: 1

Open Data Blocks: 1st DB 2nd DB
 Number: DB 1
 Size: 4



L - Cтек

Module Information - CPU314

Path: Project\Station1\CPU_Conveyor1 CPU Operating Mode: STOP
 Status: OK

General Diagnostic Buffer Memory Scan Cycle Time
 Time System Performance Data Communication Stacks

B Stack:

Block	Symbol	1st DB	2nd DB
OB1	---	---	---
FC40	---	---	DB1

L Stack: Local Data of FC40

Local Data Bytes (in hexadecimal format):

```

0 - 5: 00 00 00 00 32 00
    
```

Buttons: I Stack... L Stack... (highlighted with yellow arrow) Close Update Print... (main window); Close Print... Help (popup window)



Отображение сообщений CPU

The screenshot illustrates the steps to configure CPU messages in SIMATIC Manager. The 'PLC' menu is open, and 'CPU Messages...' is selected. The 'Customize' dialog box is open, showing 'PRO1_ALCONFIGURATION' in the 'Registered Modules' list. The 'Archive' button is highlighted, and the 'Archive Settings' dialog box is open, showing a size of 100. The taskbar at the bottom shows 'Start', 'SIMATIC Manager - Test-1', and 'CPU Messages'.

PLC Menu:

- Access Rights...
- Download (Ctrl+L)
- Upload
- Upload Station
- Manage MZ System...
- Display Accessible Nodes
- CPU Messages...**
- Display Force Values
- Monitor/Modify Variables
- Module Information...
- Operating Mode... (Ctrl+M)
- Clear/Reset...
- Set Date and Time...
- Save RAM to ROM...
- Download to EPROM Memory Card on CPU
- Compare Block Online/Offline...
- Assign PROFIBUS Address...
- Assign PG/PC
- Remove PG/PC Assignment
- Update CPU Operating System...
- Diagnose Hardware

Customize Dialog:

Registered Modules:

W	A	Module
<input checked="" type="checkbox"/>	<input type="checkbox"/>	PRO1_ALCONFIGURATION

Incoming Messages:

- Top
- Background
- Ignore

Buttons: Delete, Archive, Close, Help

Save List of Registered Modules on Exit

Archive Settings Dialog:

Size: 100

Buttons: Empty Archive, OK, Cancel, Help

Демонстрация: обнаружение ошибок



Упражнение 12.1 : чтение системной информации

Module Information - CPU314

Path: CPU Operating Mode: RUN
 Status: OK

Time System | Performance Data | Communication | Stacks
 General | Diagnostic Buffer | Memory | Scan Cycle Time

Description: CPU314 System ID: SIMATIC 300

Version:

Order No./Description	Component	Version
6ES7 314-1AE01-0AB0	---	7

Rack: 0 Address: ---
 Slot: 2 Module Width: 1

Status:

Close Update Print... Help

Упражнение 12.2: диагностика ошибок в программе

Загрузите S7 программу
"Error_A (Error_B)"
из проекта "PRO1_E"
в контроллер



Когда CPU
перейдет в STOP,
найдите ошибку
(PLC ->
Module Information).