SCE 培训资料

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Siemens Automation Cooperates with Education | 09/2017

博途 (TIA Portal) 模块 012-001 SIMATIC S7-1500 固件升级



57-1500

TA-Bortal

本培学习/培训文档适用于以下 SCE 教育培训产品

- · SIMATIC S7 CPU 1516F-3 PN/DP 订货号: 6ES7516-3FN00-4AB2
- · SIMATIC STEP 7 Professional V14 SP1 单用户许可证 订货号: 6ES7822-1AA04-4YA5
- SIMATIC STEP 7 Professional V14 SP1 6 套课堂许可证 订货号: 6ES7822-1BA04-4YA5
- SIMATIC STEP 7 Professional V14 SP1 6 套升级许可证 订货号: 6ES7822-1AA04-4YE5
- SIMATIC STEP 7 Professional V14 SP1 20 套学生许可证 订货号: 6ES7822-1AC04-4YA5

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感谢德累斯顿工业大学、Michael Dziallas Engineering 公司和其他全体参与者在本 SCE 教学资料编写过程 提供的支持。

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SIMATIC S7-1500 固件升级

1 目标

在这一章节中,我们将展示如何使用博途 (TIA Portal) 检查 SIMATIC S7-1500 的 CPU 固件状态及 进行升级。

可以使用第3章所述的 SIMATIC S7 控制器。

2 前提条件

您无需任何基础即可顺利完成本模块的学习。

3 所需的硬件和软件

- 工程组态站:必要的硬件和操作系统是工程组态站的前提 (更多信息参见博途 (TIA Portal) 安装 DVD 里的自述文件)
- 2 博途 (TIA Portal) 软件平台里的 STEP 7 Professional 软件 V14 及以上版本
- 3 控制器 SIMATIC S7-1500,例如 CPU 1516F-3 PN/DP V1.6 及以上固件版本 带存储卡
- 4 工程组态站和控制器之间采用以太网连接





2 SIMATICSTEP 7 Professional (TIA Portal) V14 及 以上版本

3 控制器 SIMATIC S7-1500

4 基础理论

4.1 自动化系统 SIMATIC S7-1500

自动化系统 SIMATIC S7-1500 是一套适用于中高功率范围的模块化控制器。

为了配合各种自动化任务,它还具有全面的模块系列。

SIMATIC S7-1500 是在自动化系统 SIMATIC S7-300 和 S7-400 的基础上改良研发的成果,同时 具有如下新性能特点:

- 系统性能提升
- 集成运动控制功能
- PROFINET IO IRT
- 集成式显示屏,直观地对机器进行操作及诊断
- STEP 7 语言方面的创新,同时还保留了各项成熟的功能

S7-1500 控制器由电源 ①、集成了显示屏的 CPU ② 和用于数字及模拟信号的输入/输出模块 ③ 组成。

将模块安装到带集成式凹顶导轨的型材导轨 ④ 上。针对特殊任务(例如步进电机控制)还可能会 用到通信处理器和功能模块。



系统可通过软件 STEP 7 Professional 进行编程。

4.2 CPU 1516F-3 PN/DP 的操作元件和显示元件

下面插图所示为 CPU 1516F-3 PN/DP 的操作元件和显示元件。

对于其他 CPU,其元件的布局和数量可能与本图不一致。

4.2.1 CPU 1516F-3 PN/DP(带集成式显示屏)的正面视图



- 1) 用于显示 CPU 当前运行状态和诊断状态的 LED 指示灯
- 2) 显示屏
- 3) 控制键

4.2.2 状态显示与故障显示

CPU 带有如下 LED 指示灯:



- 1) RUN/STOP LED (黄色/绿色 LED)
- 2) ERROR LED (红色 LED)
- 3) MAINT LED (黄色 LED)
- 4) 用于端口 X1 P1 的 LINK RX/TX LED (黄色/绿色 LED)
- 5) 用于端口 X1 P2 的 LINK RX/TX LED (黄色/绿色 LED)
- 6) 用于端口 X1 P1 的 LINK RX/TX LED (黄色/绿色 LED)

4.2.3 前盖板后侧的 CPU 1516F-3 PN/DP 操作元件和连接元件



- 1) 用于显示 CPU 当前运行状态和诊断状态的 LED 指示灯
- 2) 显示屏接口
- 3) SIMATIC 存储卡插槽
- 4) 运行模式开关
- 5) 用于 PROFINET X1 和 X2 接口 3 个端口的 LED 指示灯
- 6) 接口的 MAC 地址
- 7) 显示屏接口
- 8) SIMATIC 存储卡插槽
- 9) 运行模式开关
- 10) 用于 PROFINET X1 和 X2 接口 的 3 个端口的 LED 指示灯
- 11) 接口的 MAC 地址

提示:可以在运行的过程中插拔带有显示屏的前盖板。

4.2.4 SIMATIC 存储卡 (MC)

使用 SIMATIC MMC (MC) 卡作为 CPU 的存储模块。这是一种与 Windows 文件系统兼容且预先经 过了格式化的存储卡。存储卡具备多种不同的存储容量,可用于以下用途:

- 数据存储介质,用于传输数据
- 程序卡
- 固件升级卡

由于 CPU 没有集成式装载存储器,因此要运行 CPU,就必须插入 MMC 卡。为了使用 PG/PC 写/ 读 SIMATIC 存储卡,需要使用常见的 SD 卡读卡器。这样一来,就可以通过 Windows 资源管理器,将文件直接复制到 SIMATIC 存储卡上。

提示: 建议仅在 CPU 断电时插拔 SIMATIC 存储卡。

4.2.5 运行模式开关

通过运行模式开关,可以对 CPU 的当前运行模式进行设置。运行模式开关作为拨动开关使用,带 有 3 个开关档位。

位置	含义	说明	
RUN	RUN 运行模式	CPU 处理用户程序	
STOP	STOP 运行模式	CPU 不处理用户程序	
MRES	存储器复位	用于进行 CPU 存储器复位的开关档位	

通过软件 SIMATIC STEP 7 Professional V14 的 CPU 操作面板上的按钮,同样可以在"在线和诊断"下切换运行状态(STOP 或 RUN)。

此外,操作面板上还有一个 MRES(存储器复位)按钮,用于执行存储器复位,并且还有显示 CPU 状态的 LED 指示灯。

F	Press Control [CPU	1516-3 PN/DP
	RUN / STOP	RUN
	ERROR	STOP
	MAINT	MRES

4.3 编程软件 SIMATIC STEP 7 Professional V14 (TIA Portal V14)

SIMATIC STEP 7 Professional (TIA Portal) 软件是用于自动化系统的编程工具:

- SIMATIC S7-1500
- SIMATIC S7-1200
- SIMATIC S7-300
- SIMATIC S7-400
- SIMATIC WinAC

通过SIMATIC STEP 7 Professional 可执行如下功能,以实现设备的自动化:

- 硬件的组态和参数赋值
- 确定通信方式
- 编程
- 借助运行/诊断功能执行测试、调试和服务
- 记录
- 利用集成的 WinCC Basic 为 SIMATIC 精简面板进行可视化设置
- 利用其他 WinCC 软件包,同样可以为 PC 或者其他面板创建可视化解决方案

可通过详细的在线帮助获取关于全部功能的支持信息。

4.3.1 博途 (TIA Portal) 的基本设置

- ® 用户可对博途 (TIA Portal) 里的特定设置进行独立预设置。此处将介绍几个重要的设置。
- 请在项目视图里选择菜单 "选项 (Options)",然后选择 "设置 (Settings)"。



- ⑧ 其中一项基本设置用于选择用户界面语言及程序介绍语言。在下文中这两项设置均选用"英语 (English)"。
- language)" ⑧ "英语 (English)" 及"助记符 (Mnemonic)" ⑧ "英语 (English)"。

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oject Edit View Insert Or The Save project 📕 🐰	nline Options Tools Window Help 語 語 X うさでま 語 型 匠 日	🛛 🙀 🚿 Goonline 🖋 Gooffiine 🛔 🚺 🗰 🗴 🕨	Totally Integrated Automation PORTAL
Settings			_ # = × <
			1
			Tas
General	Control		~ \$
 Hardware configuration 	General		
PLC programming	General		
STEP 7 Safety			
Simulation	General settings		ar.
Online & diagnostics			es
PLC alarms	User name:	mde	
Visualization	User interface language:	English	
Keyboard shortcuts	4 Mnemonic:	International	-
Password providers	whenome.	German	
Multiuser	Show list of recently used	International	
CAx	projects:	8 🗢 elements	
		Load last opened project during startup	
	Tooltips:	Show truncated texts completely	
		Show tooltips (context-sensitive help is available)	
	Siemens oject Edit View Insert Or Settings General Hardware configuration PLC programming STEP 7 Safety Simulation Online & diagnostics PLC alarms Visualization Keyboard shortcuts Password providers Multiuser CAx	Siemens oject Edit View Insert Online Options Tools Window Help Settings Settings General Hardware configuration Hardware configuration Hardware configuration STEP 7 Safety Simulation Online & diagnostics PLC alarms Visualization Keyboard shortcuts Password providers Multiuser CAx Tooltips:	Siemens oject Edit View Insert Online Options Tools Window Help Sieve project Status Settings General Hardware configuration Hardware configuration PLC programming STEP 7 Safety Simulation Online & diagnostics PLC alarms Visualization Keyboard shortcuts Password providers Multiuser CAx CAX Multiuser CAX Multiuser CAX Multiuser CAX Multiuser CAX Multiuser CAX Multiuser CAX Show list of recently used Multiuser CAX CAX CAX CAX CAX CAX CAX CAX

提示:可随时将这些设置更改为"德语 (German)"或其他"各国语种 (International)"。

4.3.2 设置编程设备的 IP 地址

为了使用 PC、PG 或手提式电脑对 SIMATIC S7-1500 控制器的 CPU 进行高级配置,需要建立 TCP/IP 连接。

为使计算机和 SIMATIC S7-1500 可通过 TCP/IP 进行彼此间的通信,必须对两台设备的 IP 地址进行匹配。

现在首先介绍如何为装有 Windows 10 操作系统的计算机设置 IP 地址。

® 请在下方任务栏找到网络图标的位置 / 随后单击 ® "网络设置 (Network settings)"。



Settings

® 在打开的网络设置窗口中点击 ® "以太网 (Ethernet)", 然后单击 ® "更改适配器选项 (Change adatper options)"。

```
Ethernet
🐯 Home
 Find a setting
                                    Q
                                                  VMware Network Adapter VMnet8
                                                  No Internet
Network & Internet
                                                  VMware Network Adapter VMnet1
                                                  No Internet
A
   Status
                                                  Unidentified network
   Wi-Fi
G.
                                                  No Internet
🔛 Ethernet
                                           Related settings
    Dial-up
G
                                           Change adapter options
    VPN
యం
                                           Change advanced sharing options
$
    Airplane mode
                                           Network and Sharing Center
                                           HomeGroup
    Mobile hotspot
((p))
                                           Windows Firewall
🕑 Data usage
Proxy
```

⑧ 选择需与控制器连接的 ⑧ "局域网连接 (Network Connections)",并单击 ⑧ "属性 (Properties)"。



® 接着选择 ® "Internet Protocal Version 4 (TCP/IPv4)" ® "属性 (Properties)"。

Networking Sharing			
Connect using:			
Intel(R) Ethemet	Connection (4) 1219-L	м	
This connection uses t	he following items:	Confi	gure
VMware Bridg	ge Protocol er Sharing for Microsoft Scheduler	Networks	^
🗹 🔔 Internet Proto	col Version 4 (TCP/IP)	(4)	
Internet Proto Inter	col Version 4 (TCP/IPv work Adapter Multiplex) protocol (DCP/LLDP)P Protocol Driver	r4) or Protocol)	~
Internet Proto Internet Proto Install Install Install	col Version 4 (TCP/IPv work Adapter Multiplex D protocol (DCP/LLDP)P Protocol Driver Uninstall	(4) or Protocol) Prope	> >
Internet Proto Microsoft Net PROFINET IC Microsoft LLD Install Description Transmission Contro wide area network p across diverse interce	col Version 4 (TCP/IP) work Adapter Multiplex D protocol (DCP/LLDP) IP Protocol Driver Uninstall II Protocol/Internet Pro protocol that provides o connected networks.	(4) or Protocol) Prope tocol. The de communicatio	> erties efault n

® 现在可使用如下 IP 地址 ® IP 地址(IP address): 192.168.0.99 并输入以下 ® 子网掩码 (Subnet mask) 255.255.255.0。接着,请应用设置。(® "OK")

ternet Protocol Version 4 (TCP/I	Pv4) Properties	
General		
You can get IP settings assigned a this capability. Otherwise, you nee for the appropriate IP settings.	automatically if your network supports ed to ask your network administrator	
Obtain an IP address automa	atically	
• Use the following IP address		
IP address:	192.168.0.99	
Subnet mask:	255.255.255.0	
Default gateway:		
Obtain DNS server address a	automatically	
Use the following DNS server	r addresses:	
Preferred DNS server:		
Alternate DNS server:		
Validate settings upon exit	Advanced	

4.3.3 在 CPU 中设置 IP 地址

在对 CPU 进行固件升级之前,请正确设置 SIMATIC S7-1500 的 IP 地址,这样编程设备才能通过 TCP(IP 通信)连接到 CPU 中。可对 SIMATIC S7-1500 的 IP 地址进行如下设置:

⑧ 请双击选择全集成自动化端口。

(® TIA Portal V14)



® 现在单击 ® "在线和诊断 (Online & Diagnostics)"并就此打开 ® "项目视图 (Project view)"。

VM Siemens		_ ¤ ×
		Totally Integrated Automation PORTAL
Start 🦓		
Devices & networks	 Show all devices Online status 	
Motion & technology		
	Accessible devices	
Visualization		
Online & Diagnostics		
	🕘 Help	
Project view		

⑧ 在项目导航器中的 ® "在线访问 (Online access)"下选择已提前设置好的网卡。如果现在单击 ® "刷新可连接的节点 (Update accesible devices)",即可以看到所连接 SIMATIC S7-1500 的 IP 地址(如果已设置)或者 MAC 地址(如果 IP 地址尚未分配)。随后选择 ® "在线和诊断 (Online & Diagnostics)"。



⑧ 在 ⑧ "功能 (Functions)"下可以看到 ⑧ "分配 IP 地址 (Assign IP address)"菜单项。在此处可以输入如下 IP 地址: ⑧ IP 地址 (IP address): 192.168.0.1 ⑧ 子网掩码 255.255.255.0。随后单击 ⑧ "分配 IP 地址 (Assign IP address)", SIMATIC S7-1500 即可获得新地址。

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Project Edit View Insert Online Options Tools Window	Help Totally Integrated Automation PORTAL
Project tree	:tion (4) 219-LM + plc_1500.profinet-schnittstelle_1 [192.168.0.1] + PLC_1500 [192.168.0.1] 🔰 🖬 🏹 🤞
Devices	<u>u</u>
Online access Displayhide interfaces Uisplayhide interfaces	 Diagnostics Functions Assign IP address to the device Devices connected to an enterprise network or directly to the internet must be protected against unauthorized access, eg, by use of firewalls and network set information about industrial security. Deso firewalls and network set into://www.siemens.com/industrialsecurity Firmware update Assign RPOFINET device na Reset to factory settings Form more that memory card Save service data MAC address: 28 -63 - 36 - 8F - 8D - 96 Accessible devices IP address: 192_168_0_1 Subnet mask: 255_255_25_0 Use router Router address: 192_168_0_1 Assign IP address Assign a device address to the module Properties Info Diagnostics
▼ Details view	Show all messages Show all message Scanning for devices on interface Intel(R) Ethernet Connection (4) I219-LM was started. S115/2017 Scanning for devices on interface Intel(R) Ethernet Connection (4) I219-LM was started. S115/2017
Portal view Solution Overview Solution Overview Solution Soluti Solution Solution Solution Solution Solution Solution	🔝 🚺 Scanning for devices completed for int

8 若未能成功分配 IP 地址,会有一条消息出现在 ® "信息 (Message)" ® "常用 (General)" 窗
 口中。

				C Prop	erties	🛓 Info	U Diagnostics	
General	Cross-references	Compile	Energy	/ Suite				
	Show all messages							
! Message				Go to	?	Date	Time	
😢 🔻 The IP	address could not be assi	gned.			?	5/15/2017	12:14:00 PM	^
😮 The	e set command could not l	be executed.				5/15/2017	12:14:00 PM	
								~

4.3.4 在 CPU 中对存储卡进行格式化

若未能成功分配 IP 地址,必须删除 CPU 上的程序数据。删除操作分 2 步 ® "格式化存储卡 (Format memory card)"和

- ®"恢复出厂设置 (Reset to factory settings)"。
- ⑧ 首先选择 ⑧ "格式化存储卡 (Format memory card)"功能,然后按下 ⑧ "格式化 (Format)" 按钮。

Project tree		on (4) I219-LM × plc_1500.p				
 Online access Display/hide interfaces Display/hide interfaces Update accessible devices Update accessible devices Iper_1500 profinet-schnittstelle_1 [192.1 Online & diagnostics Forgram blocks Technology objects TeC dat types Online card data Intel(R) Dual Band Wireless-AC 8265 	168.0.1]	Diagnostics Functions Assign IP address Set time Firmware update Assign PROFINET device na Reset to factory settings Formatmemory.cond Save service data	Format memory card	Paddress: 192 . /ice name: plc_150 pc_ FC	168 . 0 . 1 00.profinet-schnittste Format	lie_1
		< III >	< m	s †i Info	Diagnostics	
Card Reader/USB memory		General Cross-reference	s Compile Energy Su	te	a singinorici	

® 出现询问是否需要格式化时,单击 ® "是 (Yes)"确认。



® 必要时使 CPU 停止。(®"是 (Yes)")



4.3.5 将 CPU 恢复到出厂设置

8 在重置 CPU 之前,必须等待至 CPU 格式化完成为止。之后,必须为 CPU 重新选择 ® "更新可连通的节点 (Update accesible devices)"和 ® "在线和诊断 (Online & diagnostics)"。为重置控制器,可选择 ® "恢复出厂设置 (Reset to factory settings)"功能,随后选择 ® "删除 IP 地址 (Delete IP addres)"并单击 ® "重置 (Reset)"。

Devices Save project Image: Save	Siemens			
Project tree n (4) [219-LM + plc_1.profinet interface_1 [192.168.0.1] + CPU common [192.168.0.1] - • • • • • • • • • • • • • • • • • •	roject Edit View Insert Online Options Tools 🗄 🎦 🗔 Save project 🔳 🐰 🗐 🗎 🗙 🏷 ± 🍘	, Window Help 1± 🗟 🛄 🛅 🖳 🙀 💋 Goonlin	ne 🖉 Go offline 🛛 🛔 🖪 🗶 📑 🔭	Totally Integrated Automation PORTAL
Devices Devices Diagnostics Functions Assign IP address Displayhide interfaces Functions Displayhide interfaces Firmware update Assign PROFINET device name: Plc_1.profinet interface_1 [192.168.0.1] Proprem blocks Firmware update Proprem blocks Reset to factory settings Proprem blocks Reset Proprem blocks Reset Proprematic protocol detection Reset Process on the end data Reset Properties Info P	Project tree 🔲 🖣	n (4) I219-LM + plc_1.profin	et interface_1 [192.168.0.1] + CPUcom	mon [192.168.0.1] 🛛 🗖 🗮 🗙
 Diagnostics Functions Assign IP address Set time Firmware update Assign PROFINET device na Reset to factory settings IP address: 192.168.0.1 Firmware update Assign PROFINET device na Reset to factory settings Format memory card Seve service data PROFINET device name: plc_1profinet interface_1 Program blocks Format memory card Seve service data Reset Reset Reset Reset Reset Reset Reset Reset Seve service (Automatic protocol detection) Card Reader/USB memory Show all messages Show all messages Show all messages 	Devices			
 Assign IP address Displayhide interfaces Displayhide interfaces Intel(R) Ethernet Connection (4) 1219-LM Update accessible devices Iplc_1.profinet interface_1 [192.168.0.1] Online & diagnostics Program blocks Technology objects Online card data Intel(R) Dual Band Wireless-AC 8265 P C internal [Local] TeleService [Automatic protocol detection] TeleService [Automatic protocol detection] Technology objects Show all messages Show all messages Scanning for devices completed for interface lntel(R) Ethernet Connection (4) 1219-LM. Foun. 		Diagnostics Functions	Reset to factory settings	*
Crinternal [Local] Crinternal [Local	Gonline access Displayhide interfaces Displayhide interfaces Intel (R) Ethernet Connection (4) 1219-LM Type Update accessible devices Intel (R) Ethernet Connection (4) 1219-LM Differe & diagnostice Online & diagnostice Program blocks Program blocks Program blocks Program blocks Program blocks Program content of the second	Assign IP address Set time Firmware update Assign PROFINET device na Reset to factory settings Format memory card Save service data	IP address : PROFINET device name :	192168.0 .1 plc_1.profinet interface_1 Retain IP address Delete IP address Reset Reset
I Techny (Internet Connection (Internet Connec	PC internal [Local]	< III >	< m	>
Details view I Message Go to ? Scanning for devices completed for interface Intel(R) Ethernet Connection (4) I2194.M. Foun	TeleService [Automatic protocol detection] Gard Reader/USB memory	General Cross-reference	S Compile Energy Suite	Diagnostics
Message Go to 7 Scanning for devices completed for interface Intel(R) Ethernet Connection (4) 1219-LM. Foun	✓ Details view			
		Scanning for devices completed	eted for interface Intel(R) Ethernet Connection (4	Go to ?

® 出现询问是否确实需要重置时,单击 ® "是 (Yes)"确认。



⑧ 必要时使 CPU 停止。(⑧"是 (Yes)")



⑧ 重置 CPU 后,请再次单击 ® "刷新可连接的节点 (Update accesible devices)",现在就可以 看到所连接的 SIMATIC S7-1500 的 MAC 地址了。在此处的 ® "在线和诊断 (Online & diagnostics)"下选择 ® "功能 (Functions)"菜单项 ® "分配 IP 地址 (Assign IP address)"。 在此处可以输入如下 IP 地址 (IP address): IP 地址: 192.168.0.1 子网掩码 (Subnet mask) 255.255.255.0。现在单击"分配 IP 地址 (Assign IP address)",您的 SIMATIC S7-1500 即可 获得新地址。

Project tree	LM > Accessible device [28-63-36-8F-	BD-96] + Accessible device [28-63-36-8F-BD-96] 🛛 🗕 🖬 🗮 🗙
Devices Devices Devices Displaylhide interfaces Displaylhide interfaces Displaylhide interfaces Displaylhide accessible devices Displaylhide accessible devices	Diagnostics General Functions Assign IP address Assign PROFINET device na	Devices connected to an enterprise network or directly to the internet protected against unauthorized access, e.g. by use of firewalls and net For more information about industrial security, please visit http://www.siemens.com/industrialsecurity
C internal [Local] Toronal [Local] Difference [Local] Difference [Automatic protocol detection] Difference [Automatic protocol detection] Difference [Local Reader/USB memory		IP address: 192 . 168 . 0 . 1 Subnet mask: 255 . 255 . 255 . 0 Use router Router address: 0 . 0 . 0 . 0 Assign IP address
		Assign a device address to the module
▼ Details view	General Cross-references Con	npile Energy Suite

® 参数传输成功后,会有一条消息出现在窗口 ® "信息 (Message)" ® "常用 (General)"中。

			Q Properties	i, Info	😢 Diag	nostics		78	-
General	Cross-references	Compile	Energy Suite						
340	Show all messages	•							
1 Message						Go to	7		
f Scan	ning for devices completed	l for interface Inte	el(R) Ethernet Conn	ection (4) 12	19-LM. Foun.				~
📀 The p	arameters were transferre	d successfully.							~
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4.3.6 加载 SIEMENS 的固件更新支持页面

您可在 SIEMENS AG 的"工业支持中心"中下载最新的固件升级。

® 打开您的网页浏览器,然后输入地址 ® "support.automation,siemens.com"。

Start	× +		-		×
$\leftarrow \rightarrow \text{ O}$	Search or enter web address	=	1	0	
	support.automation.siemens.com web search				

■ 选择用户界面语言 ■ "语言" ■ "中文"。



⑧ 进入"搜索产品资料"时需登记 CUP,为此您需要进行一次固件升级。例如: ⑧ "S7-1500
 CPU1516F"。

Industry Support Sieme $ imes +$						×
ightarrow D A support.industry.siemens.com/cs/start?lc	=en-DE	□ ☆	=		٩	• •
SIEMENS		-	Industr Home	y Oi	• nline	Inte
Industry Online Support Germany Deutsch Home	Contact Help Support Request	,	Site Explor	er uct Supp	Searci	h in
Product Support Application Examples Services Forum mySupport			 Favorite Persona My requite CAx dor My Proof User of 	port (al messa lests winloads ducts / C online (Cockp ages Dipboard 39)	it 1
information. S7-1500 CPU1516F × Q			Sieme	ns at	Hanno	ove
© Sigmone AG 2000-2017 Imprint Privacy policy Cookie policy Terms of us	e Digital ID					

 ⑧ 在"文献筛选标准"下选择"文献类型" ⑧"下载"并单击选择所列出的 CPU 固件升级条目 及其所属显示屏。

57 1500 CDU15165 D	V L				_		~
37-1300 CP0 1316F - D0	^ T						^
$ ightarrow$ O \mid	support.industry.siemens.com/cs/products	s?search=S7-1500%20CPU1516	6F&dtp=Download&mfn=	□ ☆	= 12	Ĵ	•••
SIEMENS				Indu	u stry O l Ict Support	• nline	Interr
🕨 💻 Industry Online		► Contact ► Help ►	Support Request		Explorer	Search	ı in Or
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All	 S7-1500 CPU1516F 		C	XX			
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> Search product							
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18 Entries Filtered by '	S7-1500 CPU1516F' and 'Download' Entries per page: 20 50 1	00	« < 1 >	»			
Action	5		Relevance	• my	Support	Cockpi	it
Downloa Firmwar For proc	d Firmware update S7-1500 CPUs incl. Displays e update for all S7-1500 CPUs incl. Displays and ET ucts: 6ES7513-1AL00-0AB0, 6ES7511-1AK00-0AB	s and ET200 CPUs	03/27/2 ID: 109474 ★★★★☆	2017 > F 8459 > F \$7 (9) > M	avorites Personal mess Ay requests	ages	

® 随后弹出的窗口中将显示不同的升级选择。请选择推荐的升级以实现 CPU 的高级配置。

Latest vers GES7510-1DJ01-0AB0 GES7510-1SJ01-0AB0 GES7511-14K01-0AB0 GES7511-17K01-0AB0 GES7511-17K01-0AB0 GES7512-1CK00-0AB0 GES7512-1CK00-0AB0 GES7512-1CK01-0AB0 GES7513-1FL01-0AB0 GES7513-1FL01-0AB0 GES7515-2FM01-0AB0 GES7515-2FM01-0AB0 GES7516-3FN01-0AB0 GES7516-3FN01-0AB0 GES7516-3FN01-0AB0 GES7516-3FN01-0AB0 GES7516-3FN01-0AB0 GES7516-3FN01-0AB0 GES7516-3FN01-0AB0 GES7516-3FN01-0AB0 GES7516-3FN01-0AB0 GES7516-3FN01-0AB0 GES7516-3FN01-0AB0 GES7516-3FN01-0AB0 GES7516-2GN00-0AB0 GES7510-2GN00-0AB0 GES7510-2GN00-0AB0 GES7510-2GN00-0AB0 GES7510-2GN00-0AB0 GES7510-2GN00-0AB0 GES7510-2GN00-0AB0 GES7510-2GN00-0AB0 GES7510-2GN00-0AB0 GES7510-2GN00-0AB0 GES7510-2GN00-0AB0 GES7510-2GN00-0A	ions d	of firmware for update Third-party software - Licensing terms and copyright information
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6ES7517-3FP00-0AB0 6ES7517-3TP00-0AB0 6ES7518-4AP00-0AB0 6ES7518-4AP00-0AB0 6ES7518-4FP00-0AB0 6ES7518-4AP00-3AB0 6ES7518-4FP00-3AB0	2.1.0	You can find the copyright information for third-party software contained in this product, particularly open source software, as well as applicable licensing terms of such third-party software in the Readme_OSS_V210 file. Special information for resellers The information and the license terms in the Readme_OSS_V210 file must be passed on to the purchasing party to avoid license infringements by the reseller or purchasing party. In of ReadMe_OSS_V210.htm (3,0 MB) Recommended for update: see description Update V2.1.0 (CPUs) In of S7-1500_CPUs_V210.ZIP (543,7 MB)

• 如果您还没注册,请在以下窗口中进行注册(⑧"是,我现在就要注册"),注册完毕后 - 请
 输入您的"登录账号"和"密码"进行登录(⑧"登录")。

Are you al	ready registered?	First time here?	
Login Password	XXXXX Forgotten your password/ login? Recognition 1	Register now to use the full range of functionality of the Internet appearance of Siemens. For each of the different applications only one registration is required! > Yes, I would like to register now	
Please note	Login :: Change passwords at regular intervals to rais	se the protection from data theft.	

● 注册时,请输入必要的信息,选择选项"下载导出受限类软件"并随即保存注册信息。
 (● ■ ● "保存")

Firmwa	are update for	CPU 12	S Indu	istry Support S	Sieme \times +					-		>
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Download of export restricted software

Access authorization for the download of export-restricted software Software that is subject to export restrictions may not be made generally accessible. Access authorization to export-restricted software may only be granted to selected, registered users.

 $\overline{\mathbb{M}}$ Yes, I would like to register for access to export-restricted software

* Mandatory field

Save



® 请返回登录界面。登录后即可将固件升级保存到您的计算机中。(® "保存至")

® 在您的计算机中选择你所需的存储位置并单击 ® "保存"。

Save As							×
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File name:	S7-1500_CPUs_V210						~
Save as type:	Compressed (zipped) Folder						~
 Hide Folders 				Sa	ve	Cancel	

⑧ 您也可以返回 SIEMENS AG 的"工业支持中心"通过显示屏选择固件升级。请选择推荐的升级以实现高级配置。随后,您可以将固件升级保存到您的计算机中。(⑧"保存至")

S	Firmware update S7-	-151 × +					-		×
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	Display for S7-150	0:							^
	CPU type			Article number		FW down	load		
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	Firmware Upd	ate for the Displ	avs of C	PUs 1515(F)/15	16(F)/15	17(F)/1	518(F)		
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	In this entry all firmwar	e version are provided for	the displays	of CPUs 1515(F)/1516(F)/1517(F)/15	518(F).			
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	When updating the firr article number. The pr original version. Until r The respective latest v How to update the firm	nware, always update to the evious versions of the firmwa now this is not known to have version of a firmware is valid ware is described in detail ir	latest version are are only int been necess for all versions n entry ID > 77	a available for the product a rended as backup to allow a ary in any case. s of that article number. 492231	and its respec a downgrade	tive to the			
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	CE07501 10401 0440								
	0E37391-1DA01-0AA0	V2.0.0	Recommende see descriptio	ed for update: on update V2.0.0					
		V1.8.0	Backup only: see descriptio	on update V1.8.0	2 (4,3 MID)				
			ZIP O' 6ES/5	91-1BA01-0AA0_V180.ZIF	⁹ (4,4 MB)				
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® 在您的计算机中选择你所需的存储位置并单击 ® "保存"。

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® 现在,在 Windows 资源管理器中单独点击已下载的 CPU 和显示屏固件升级压缩包并选择 ®
 "全部提取"。

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4.3.7 CPU 的固件升级

现在,可通过如下操作将包含固件升级的文件导入 SIMATIC S7-1500 的 CPU 中。

® 在项目导航器中的 ® "在线访问 (Online access)"下选择已提前设置好的网卡。在此处单击 ®
 "刷新可连接的节点 (Update accessible devices)",即可看到所连接 SIMATIC S7-1500 的
 IP 地址。选择 ® "在线和诊断 (Online & diagnostic)"。在菜单项"常规 (General)"下,您可
 在"诊断 (Diagnostics)"项中检测 CPU 的当前固件。



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Project tree 🔲 🖣	ss + Intel(R) Ethernet Conne	ection (4) I219-LM → Accessible device [192.168.0.1] → CPUcommon [192.168.0.1] 💦 🕳 🖬 🗙
Devices		
1 I I I I I I I I I I I I I I I I I I I	Diagnostics Functions	> PLC
Online access Display/hide interfaces	Assign IP address Set time	Online data
▼ 🛄 Intel(R) Ethernet Connection 👼	▼ Firmware update	Article number: 6ES7 516-3FN01-0AB0
Pupdate accessible devices	PLC	Firmware: V2.0.1
 Accessible device [192.16. 	Local modules Display	Name: CPUcommon [192.168.0.1]
🛂 Online & diagnostics	Assign PROFINET device pa	
Program blocks	Reset to factory settings	Rack: 0
Technology objects	Format memory card	Slot: 1
 Le PLC data types Online card data 	Save service data	
🕨 🛄 Intel(R) Dual Band Wireless-A	-	
PC internal [Local]		Firmware loader
FeleService [Automatic proto		Firmware file:
Card Reader/USB memory		Firmware version:
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		Suitable for modules with: Article number Firmware version and higher
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	< III >	v
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Portal view	V. Online & dia	

® 随后,在您的计算机上选择之前已下载和解压的固件 ® "6ES7 ***-****.upd"并单击 ®
 "打开"。

→ × ↑ 🔤 « Downl	oads	> S7-1500_CPUs_V210 > FWUPDATE.S7S	~	Q	Search F	WUPDATE.S7S		P
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6ES7591-18401-0440		6ES7 515-2TM01-0AB0 V02.01.00.upd	5/1	5/2017	5:36 PM	UPD File		
67 1500 CDU- V210	-	6ES7 516-2GN00-0AB0 V02.01.00.upd	5/1	5/2017	5:36 PM	UPD File		
37-1300_CPUS_V210		6ES7 516-2PN00-0AB0 V02.01.00.upd	5/1	5/2017	5:36 PM	UPD File		
SCE_DE_012-001_pics		BES7 516-3AN01-0AB0 V02.01.00.upd	5/1	5/2017	5:36 PM	UPD File		
SCE_DE_012-001pics		6ES7 516-3FN01-0AB0 V02.01.00.upd	5/1	5/2017	5:36 PM	UPD File		
SCE_EN_012-001_pics		6ES7 517-3AP00-0AB0 V02.01.00.upd	5/1	5/2017	5:36 PM	UPD File		
SCE_EN_012-001pics		6ES7 517-3FP00-0AB0 V02.01.00.upd	5/1	5/2017	5:36 PM	UPD File		
Documents		6ES7 517-3TP00-0AB0 V02.01.00.upd	5/1	5/2017	5:36 PM	UPD File		
		6ES7 517-3UP00-0AB0 V02.01.00.upd	5/1	5/2017	5:36 PM	UPD File		
Musia		6ES7 518-4AP00-0AB0 V02.01.00.upd	5/1	5/2017	5:36 PM	UPD File		
	~	<						>
File name	: 6E	S7 516-3FN01-0AB0 V02.01.00.upd		~	Firmwa	re files (*.upd,*.sen	n)	>

® 随后弹出的对话框将显示您的固件文件是否与您的 CPU 兼容。现在启动升级。(® "启动升级 (Run update)")

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roject Edit View Insert Online Opti 🚰 🎦 🔚 Save project 🔳 💥 💷 🗎 🗙	ions Tools Window Help	🖉 Go online 🦉 Go offline 🎄 🖪 🖪 🗱 🗶 🖃 🛄 🔭
Project tree 🛛 🖬 📢	iss + Intel(R) Ethernet Conne	ction (4) I219-LM → Accessible device [192.168.0.1] → CPUcommon [192.168.0.1] 👘 🕳 🗙 👔
Devices	Diagnostics Functions Arcion IB address	A
Gonline access Displayhide interfaces Displayhide interfaces Ginte(R) Ethermet Connection Gonder Connection	Set ime • Firmware update FIC Local modules Display Assign PROFINET device na Reset to factory settings Format memory card Save service data	Firmware todder Firmware version: V2.1.0 Suitable for modules with: Article number Firmware version and higher 6E57 516-3FN01-0A80 No restriction Stetus:
c Ⅲ > ✓ Details view		✓ Run fir Run update budate the firmware
		🔍 Properties 🚺 Info 🖏 Diagnostics 🔊 🖃 📥
Portal view	V. Online & dia	Scanning for devices completed for int

® 将通过下列对话框显示升级进程和升级是否成功。最后点击 ® "OK"确认。

Firmware	update
٢	16% completed Update firmware
	Remaining time in minutes: 1
1	Cancel
Firmware	update
X	Activate firmware on target Please wait. This process may take a few minutes.
	Cancel
	×
1	The firmware V 2.1.0 was transferred successfully to module CPU common [192.168.0.1] with article number 6ES7 516-3FN01-0AB0 and activated on the module.
	ОК

4.3.8 显示屏的固件升级

当您将升级文件完全导入 SIMATIC S7-1500 的 CPU 中之后,我们建议您同时将当前的固件升级 保存在显示屏中。

① 在项目导航器中的 ® "在线访问"下选择已提前设置好的网卡。在此处单击 ® "刷新可连接的 节点 (Update accessible devices)",即可看到所连接 SIMATIC S7-1500 的 IP 地址。在此处 选择 ® "在线和诊断 (Online & diagnostic)"。请在 ® "功能 (Functions)"菜单中切换至菜单 项 ® "固件升级 (Firmware update)" ® "显示屏 (Display)"。在子菜单 ® "固件升级 (Firmware update)" 中单击 ® "搜索 (Search file)"。

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Online access	Assign IP address Set time	Online data			
	✓ Firmware update PLC Local modules Display Assign PROFINET device na Reset to factory settings Format memory card Save service data	Article number: Firmware: Name: Rack: Slot:	6657 591-18A01-0AA0 V 2.0.0 CPU display_1 0 1.3		
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® 随后,在您的计算机上选择之前已下载和解压的固件 ® "6ES7 ***-****.upd"并单击 ®
 "打开"。

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® 随后弹出的对话框将显示您的固件数据是否与您的显示屏兼容。接着启动升级。(®"启动升级")

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roject tree 🔲 🖣	:ss 🕨 Intel(R) Ethernet Conne	ction (4) I219-LM + Accessib	le device [192.168.0.1]	CPU common [192.168.0.1]	_ # = X
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Update accessible devices	PLC Local modules	Firmware version:	V 2.0.0		
Conline & diagnostics	Display	Suitable for modules with:	Article number 6ES7 591-1BA01-0AA0	Firmware version and higher No restriction	
Program blocks Technology objects	Reset to factory settings				
PLC data types	Format memory card Save service data				
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TeleService [Automatic proto					
Card Reader/USB memory		Status:			
Details view			Run firr		
	< III >		Kun update		

® 将通过下列对话框显示升级进程和升级是否成功。最后点击 ® "OK"确认。

Firmware	update
0	0% completed Update firmware
	Remaining time in seconds: ?
	Cancel
Firmware	update
Z	Activate firmware on target Please wait. This process may take a few minutes.
	Cancel
	×
1	The firmware V 2.0.0 was transferred successfully to module CPU display_1 with article number 6E\$7591-1BA00-0AA0 and activated on the module.
	ОК

5 更多相关信息

为帮助您进行入门学习或深化学习,您可以找到更多指导信息作为辅助学习手段,例如:入门指南、视频、辅导材料、APP、手册、编程指南及试用版软件/固件,单击链接:

siemens.com/sce/s7-1500

预览"其它信息"

Getting Started, Videos, Tutorials, Apps, Manuals, Trial-SW/Firmware

- ↗ TIA Portal Videos
- ↗ TIA Portal Tutorial Center
- > Getting Started
- ↗ Programming Guideline
- ↗ Easy Entry in SIMATIC S7-1200
- > Download Trial Software/Firmware
- ↗ Technical Documentation SIMATIC Controller
- ↗ Industry Online Support App
- ↗ TIA Portal, SIMATIC S7-1200/1500 Overview
- ↗ TIA Portal Website
- ↗ SIMATIC S7-1200 Website
- ↗ SIMATIC S7-1500 Website