Wake on LAN function on SIGLENT oscilloscopes



Application Note AN0001-EN01A



1 Introduction of Wake on LAN

Wake-on-LAN (WoL) is an Ethernet standard that allows a computer to be turned on or awakened from sleep mode by a network message, so called magic packet.

The test instruments like oscilloscopes typically consume 40W to 240W power in normal work mode. But in standby mode, it's merely few Watts. So it would be energy wise to turn on the instruments on demand. Occasionally the instruments may be out of physical reach, so if it is feasible to turn on them via Ethernet.

The SIGLENT SDS7000A oscilloscope adopts a X86 platform which enables WoL. With WoL software, it only takes several minutes to implement this function.

2 Settings on oscilloscope

SDS7000A series oscilloscope with FW version newer than 1.1.9.1R1 supports WoL function. After the FW update, there are several settings to be performed.

1.1 BIOS settings

Connect a keyboard to SDS7000A, press the power button and then press **Esc** on keyboard (make sure it's done before the SIGLENT logo appears). Input password ding1234 and press **Enter** to get in the BIOS interface.



Figure 1. Enter password ding1234

Locate at Advanced menu with the left \leftarrow or right \rightarrow button on keyboard. Enable Network Stack Configuration, then following menus in Figure 2 will appear. Enable Network Stack and Ipv4 PXE Support.



Figure 2. Advanced menu configurations

Press Esc to exit. Get into the ACPI Settings menu. Enable PCIE# Wake from S5.

Aptio Setup Utility	– Copyright (C) 2022 American	Megathenus, In
ACPI Settings Enable Hibernation ACPI Sleep State S3 Video Repost PCIE# Wake from S5	[Enabled] [S3 (Suspend to RAM)] [Disabled] [Enabled]	Enable or disa the system from
		<pre>++: Select Scr fl: Select Ite Enter: Select +/-: Change Op F1: General He F2: Previous V F3: Optimized F4: Save & Exi ESC: Exit</pre>

Figure 3. ACPI Settings

Press F4 and choose Yes, press Enter to save the settings and exit.

Aptio Setup Utility - Copyrig Main Advanced Chipset Security Boot S	g ht (C) 2022 American Save & Exit	Megatrends, Inc.
 CPU Configuration PCH-FH Configuration ACPT Settings NCT6106D Super IO Configuration NCT6106D HH Monitor Serial Port Console Redirection Intel TXT Information USB Configuration CSM Configuration Network Stack Configuration 	& Exit Setup guration and exit?	Network Stack Settings
Version 2.20.1271. Copyright	No (C) 2022 AMERICAN MA	 4: Select Item nter: Select /-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Figure 4. Press F4 to save settings and exit

1.2 LAN settings

On SDS7000A, go to Utility->Menu->I/O->LAN Config, set the IP Address, Subnet Mask and Gateway or simply check Automatic (DHCP). Keep in memory the MAC address, it will be used on WakeOnLAN software settings.

4GF 1Gpt	Hz-12Bit s Memory	SIGLENT f(C1) <	Auto 2.0Hz	Ü	I/O SETTING
System Settings				LAN	Config
LAN(lower) LAN(upper)			Clock	CSource
Automatic (Dł	HCP)			GPIB	. c
IP Address :	10.11.20.	.2			18
Subnet Mask :	255.255.2	255.0		4	
Gateway :	10.11.20.	.1		D	Return
VNC Config VNC Port:	5900		0		
MAC Information MAC Address :	00 :19 :0	F :48 :90 :2	6		
	0	K C	ancel		

Figure 5. LAN settings on oscilloscope

After all settings are done, power off the oscilloscope but keep power line and Ethernet cable connected.

Settings on WakeOnLAN software

Download the WakeOnLAN open source PC software from the link below and install it. https://github.com/basildane/WakeOnLAN/releases/tag/2.12.4

Open the software and click File->New Host. Enter the Name and Group as you wish.

🦉 Wake on LAN	- 🗆 ×
Eile Edit View Tools Help	
Folders Views - Pinger 26 Schedule EventLog Options	Hot Buttons
Properties - SDS7404A	×
Display Properties Wake Up Status / Control Shutdown	
Name SDS7404A	
Group	
Notes	
	Statt All
Delete Help OK Cancel	
	Emergency Shutdown

Figure 6. Create a new host and name it

Enter the MAC Address of oscilloscope. Choose FQDN/IP. Enter the same subnet mask of the oscilloscope. Enter scope IP address. Keep UDP port as 9 and other settings as default.

🖉 Wake on LAN	_		\times
Eile Edit View Tools Help			
Folders 🛄 Views 🗸 🌪 Pinger 🔀 Schedule 🚅 Listener 📰 EventLog 🏟 Options	<u>(</u>) н	ot Buttor	15
All machines Properties - SDS7404A H12			
Display Properties Wake Up Status / Control Shutdown			
MAC Address 00:19:0F:48:90:26			
Send WOL to 🔘 Broadcast IP 💿 FQDN / IP			
Broadcast 255,255,0 Calculate			
FQDN / IP 10.11.20.2			
UDP Port 9 Keep Alive			
TTL 128			
Repeat 1			
		Start All	
Delete Help OK Cancel			
	ErS	nergency hutdown	,
			.:

Figure 7. Power ON settings in WakeOnLAN software

Click OK to save the settings. Right click on the Host icon and click Wake Up, the oscilloscope will power on.



Figure 8. Wake Up the oscilloscope via LAN

On Linux system, send the magic packet via below commands to wake up the oscilloscope.

allen@bsp-server:~\$	wakeonlan -	i 10.11.13.67 00:19:0F:44:55:60
Sending magic packe	t to 10.11.1	3.67:9 with 00:19:0F:44:55:60
allen@bsp-server:~\$		

Figure 9. Wave up commands on Ubuntu

One thing need to notice is that this way can only wake up the oscilloscope. If you want to shut down it, the easiest way is to use the Webserver function. Insert the scope IP address on web browser, click Instrument Control, click Utility->Shut down.

← → C 10.11	1.20.2/welcome.php		
Sig	LENT®		
ہے۔ Home	Instrument Information		
~	Instrument Model	SDS7404A H12	
<u>دې</u> LAN	Manufacturer	Siglent Technologies	
Configuration	Serial Number	SDS7AA1D7R0101	
	MAC Address	00-19-0F-48-90-26	
Instrument	TCP/IP Address	10.11.20.2	
	Software Version	04.16.05.1.1.9.1R1	
C: \+	Instrument Address String	TCPIP::10.11.20.2::INSTR	
SCPI			
			?Siglent Technologies Co.,Ltd. 2017

Figure 10. Webserver Homepage



Figure 11. Shut down scope via Webserver



About SIGLENT

SIGLENT is an international high-tech company, concentrating on R&D, sales, production and services of electronic test & measurement instruments.

SIGLENT first began developing digital oscilloscopes independently in 2002. After more than a decade of continuous development, SIGLENT has extended its product line to include digital oscilloscopes, isolated handheld oscilloscopes, function/arbitrary waveform generators, RF/MW signal generators, spectrum analyzers, vector network analyzers, digital multimeters, DC power supplies, electronic loads and other general purpose test instrumentation. Since its first oscilloscope was launched in 2005, SIGLENT has become the fastest growing manufacturer of digital oscilloscopes. We firmly believe that today SIGLENT is the best value in electronic test & measurement..

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