

FTP 10G Server Demo Instruction

Rev2.0 9-Aug-23

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This document describes the instruction to run FTP 10G Server demo on FPGA development board. NVMe SSD is applied as the storage, and transferring files through 10 Gb Ethernet. The demo is designed to run as FTP Server, connecting with TestPC by using FileZilla version 3.45.1 as FTP client. User sets the test parameters on FPGA and monitors the hardware status through FPGA console.

1 PC Setup

Before running demo, please check the network setting on PC. The example for setting 10Gb Ethernet card is described as follows.

1.1 IP Setting

🄱 Local Area Connection 2 Properties 📃 💌	Internet Protoc	col Version 4 (TCP/IPv4) I	Properties 🔋 💌
Networking Sharing	General		
Connect using: 10-Gb LAN connection	You can get t this capability for the appro	: IP settings assigned autom ty. Otherwise, you need to ropriate IP settings.	atically if your network supports ask your network administrator
<u>C</u> onfigure	Obtain -	an IP address automatically	
This connection uses the following items:	O Use the	e following IP address:	
Client for Microsoft Networks	<u>I</u> P address	ss:	192 . 168 . 7 . 25
✓ Procept detect Driver (NPCAP)	S <u>u</u> bnet ma	nask:	255.255.255.0
QoS Packet Scheduler Ele and Printer Sharing for Microsoft Networks	Default ga	jateway:	
	Obtain I	n DNS server address autom e following DNS server addr	atically esses:
Install Uninstall Properties	Preferred	d DNS server:	
Description	Alternate	e DNS server:	
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.	🗌 Validat	ate settings upon exit	Advanced
OK Cancel			OK Cancel

Figure 1-1 Setting IP address for PC

- 1) Open Local Area Connection Properties of 10-Gb connection, as shown in the left window of Figure 1-1.
- 2) Select "TCP/IPv4" and then click Properties.
- 3) Set IP address = 192.168.7.25 and Subnet mask = 255.255.255.0, as shown in the right window of Figure 1-1.



1.2 Speed and Frame Setting

Networking Sharing Connect using:	You have made changes to the properties of this connection. If you proceed your changes will be lost. Do you wish to proceed? <u>Yes No</u>
✓ Npcap Packet Driver (NPCAP) ✓ QoS Packet Scheduler ✓ File and Printer Sharing for Microsoft Networks ✓ Internet Protocol Version 6 (TCP/IPv6) ✓ Internet Protocol Version 4 (TCP/IPv4) ✓ Internet Protocol Version 4 (TCP/IPv4) ✓ Internet Protocol Version 4 (TCP/IPv4) ✓ Image: Science of the	Intel(R) Ethernet Server Adapter X528 erties
OK Cancel	Settings: Value: Jumbo Packet 2 Large Send Offload V2 (IPv6) Disabled Locally Administered Address Disabled Log Link State Event 014 Bytes Offloading Options 9014 Bytes Performance Options Use Default Jumbo Packet Use Default More large packets make up the majority of traffic and additional latency can be tolerated, Jumbo Packets can reduce CPU utilization and improve wire efficiency. Image: Note: Changing this setting may cause a momentary loss of connectivity.
	Usage Considerations

Figure 1-2 Set frame size = jumbo frame

- On Local Area Connection Properties window, click "Configure" as shown in Figure 1-2.
 On Advanced Tab, select "Jumbo Packet". Set Value to "9014 Bytes" for Jumbo Frame support or set value to "Disabled" for non-Jumbo Frame support, as shown in the bottom window of Figure 1-2.



3) On Link Speed, select "10 Gbps Full Duplex" for running 10-Gigabit transfer test, as shown in Figure 1-3.

el(R) Ethernet	Server Adapte	er X520-2 Propertie	5					
Teaming	VLANs	Boot Options	Driver	Details				
General	Advanced	Link Speed	PROSet.	Advanced				
Link Speed and Duplex Settings Intel(R) PROSet Version: 25.0.0.1000 Link Status								
Speed and Du 10 Gbps Full	iplex: Duplex	3	<u>D</u> iagnostics					
			Identify <u>A</u> dapt	er				
Speed and Duplex Setting: By default, Intel® adapters are set to automatically detect and negotiate speed and duplex settings. A setting other than Auto Negotiation restricts what the adapter advertises during auto-negotiation.								
OK Cancel								
Figure 1-3 Set link speed = 10 Gbps								



- 4) On PROSet Advanced Tab, select "Performance Options" and click "Properties" button.
- 5) Set "Interrupt Moderation Rate" = OFF.



Figure 1-4 Interrupt Moderation Rate

- 6) Select "Low Latency Interrupts" and click "Properties" button.
- On "Low Latency Interrupts" window, select "Use Low Latency Interrupts" and click "OK" button.
- 8) Click "OK" button to save and exit all setting windows.

Performance Options	Low Latency Interrupts	
Settings: Direct Cache Access Flow Control Interrupt Moderation Rate Low Latency Interrupts Receive Buthers Transmit Buffers Low Latency Interrupts Enables adapters to bypass interrupt moderation and immediately generate an interrupt when certain TCP packets arrive, allow ing the system to handle the packet more quickly. Certain applications will have faster access to netw ork data because of the reduced	Vise Low Latency Interrupts Use for packets with TCP PSH flag Use for these TCP ports: Add New Port: Add Add Remove	
data latency. NOTES: If this option is enabled_system CPI lutilization OK Cancel	Configures which packets bypass interrupt moderation and trigger immediate interrupts. Use for packets with TCP PSH flag: Any incoming packet with the TCP PSH flag will trigger an immediate interrupt. The PSH flag is set by the sending device	•
	Use for these TCP ports: Every packet received on the	-
Figure 1-5 Us	se Low Latency Interrupts	



1.3 Power Option Setting

- 1) Open Control Panel and select Power Options as shown in the left window of Figure 1-6.
- 2) Change setting to High Performance as shown in the right window of Figure 1-6.

🚱 🔍 🗢 🥮 🕨 Control Panel 🕨 All Control	Panel Items 🕨 👻 🐓 Search Contr	😋 🔵 🗢 😻 « All Control Panel	Items Power Options					
Adjust your computer's settings	View by:	Control Panel Home	Select a power plan					
		Require a password on wakeup	Power plans can help you maximize your computer's performance or conserve					
Power Options	Programs and Features	Choose what the power buttons do	changing its power settings. <u>Tell me more about power plans</u>					
		🛞 Create a power plan	Preferred plans					
Recovery	Region and Language	🔮 Coose when to turn off the	Balanced (recommended) Change plan settings					
RemoteApp and Desktop	Sound	d when the computer	Automatically balances performance with energy consumption on capable hardware.					
Connections		5	High performance Change plan settings					
Speech Recognition	Sync Center		Favors performance, but may use more energy.					
			Show additional plans 🛛 🔊					
System	Taskbar and Start Menu							
	-		Change settings that are currently unavailable					
Troubleshooting	Ser Accounts							
Mindours Antimo		See also						
	Windows CardSpace	Personalization						
		User Accounts						
起身 Windows Defender	Windows Firewall							
Figure 1-6 Power options								



1.4 FileZilla Setting

The reference design supports only one connection for transferring data through 10 Gb Ethernet. Therefore, FileZilla must be configured to transfer data by using one connection as shown in Figure 1-7.

- 1) On FileZilla application, select Edit -> Settings.
- 2) In Transfers page, set "Maximum simultaneous transfer" = 1 (Default value is 2) and click "OK" button to confirm the setting.

E	FileZilla	
<u>F</u> ile	Edit View Transfer Server Bookmarks Help	
111	Network configuration wizard	
	Clear private data	
Host		
	<u>Settings</u>	
Settings		×
Select name:	Concurrent transfers	
	Maximum simultaneous transferse 1 (1-10)	
FTP	Limit for concurrent downloads.	
Active mode		
Passive mode	Limit for concurrent uploads:	
SFTP	Speed limits	
Gene 2a xy	Enable speed limits	
ETP: File Typer	Download limit: 1000 (in KiB/s)	
File exists action	Upload limit: 100 (in KiB/s)	
- Interface	<u>B</u> urst tolerance: Normal ~	
Themes	Filter invalid characters in filenames	
Date/time format	Enable invalid character <u>f</u> iltering	
Filesize format	When enabled, characters that are not supported by the local operating system in filenames are replaced if downloading such a file.	
Language	Replace invalid characters with:	
E File editing	The following characters will be replaced: \/:*?" < >	
Updates	Preallocation	
Logging	Preallocate space before downloading	
L. Debug	22	
ОК	20	
<u>C</u> ancel		

Figure 1-7 FileZilla Setting



2 Main menu

+++ Start FTP Server 10G Demo +++	
> exFATNUMEIP(EUALUATION) [IPUer = 1.2 > NUMEIP(EUALUATION) [IPUer = 4.2] > TOE10GIP(EUALUATION) [IPUer = 1.14] > TENGEMACIP(EUALUATION) [IPUer = 1.0]	1
Waiting exFAI-IP initialization exFAI-IP initialization complete	Display to confirm format disk
The disk must be formatted by exFAT-IP Press 'y' to confirm format disk =>	

Figure 2-1 Message after system boot-up

After FPGA programming is finished, the console displays the boot message as shown in Figure 2-1.

- "Waiting exFAT-IP initialization" is displayed during running initialization.
- "exFAT-IP initialization complete" is displayed when finishing initialization and IP is idle.

Next, the console waits the input for user selecting the test option. The example steps for running the test are shown as follows.

Format without modifying time created
The disk must be formatted by exFAT-IP Enter 'Y' to confirm to format disk Press 'y' to confirm format disk => y
Current time created : 11/11/2019, 14:02:08 Press 'y' to change time created =>n Other keys ('n') to use default created time and date for Format operation (0):32 MB (1):128 MB (2):512 MB (3):2 GB (4):8 GB (5):32 GB (6):128 GB (5):32 GB (6):128 GB (6):1

Figure 2-2 Format the disk

- 1) If the disk is not formatted by exFAT-IP, "The disk must be formatted by exFAT-IP" is displayed. In this condition, user must enter 'y' to format the disk. Otherwise, the user can select to enter 'y' to confirm format operation for clearing the data in the disk or enter other keys to skip format process and start running at step 5).
- 2) When running Format disk, the message for setting created time and date are asked. The created time and date are the input for Format command to create the empty directory in the SSD. More details about the empty directory are described in exFAT-IP documents.



- 3) Under Format operation, user must set file size for using in the SSD. This file size must be matched to the file size in Test PC for loading the file to the SSD by FTP client application.
- 4) After finishing file size setting, Format operation is operated. "Format Disk complete" and file system information are displayed after finishing Format operation.



- 5) "Current time created" is displayed to show default time. User enters 'y' to change time created or other keys (not 'y') to use the default value. The time created is applied to be the input when running FTP server operation. To set time created, there are six parameters for setting created date and time.
 - Year –Year of created date. Valid range is 1980 2107.
 - Month Month of created date. Valid range is 1 12.
 - Date Date of created date. Valid range is 1 31.
 - Hour Hour of created time. Valid range is 0 23.
 - Minute Minute of created time. Valid range is 0 59.
 - Second x2 second of created time. Valid range is 0 29.

All inputs are received as decimal unit. User can add "0x" as a prefix for hexadecimal input. When the input is invalid, the parameter is not updated and the same value is used. After setting the new created date and time, "Date and Time changed" with the updated value are displayed on the console.

<u>Note</u>: Time created value is applied for two functions.

First, the new file which is uploaded from Test PC to the SSD by using FTP client software uses the created time/date as created time/date of the file in the SSD.

Second, when user reads the file list in the SSD via FTP client software, the created time/date of all files in the device is equal to this value. As a result, the modified time/date displayed on FTP client software may be different from the created date/time of the file in the device, as shown in Figure 2-4.



Figure 2-4 Time created of the SSD comparing between on the window and FTP client





Figure 2-5 Set TOE10G-IP parameter before running demo

6) The menu to set network parameters are displayed. Enter 'x' to skip parameter setting by using default parameters for system initialization or other keys to change parameters. Seven parameters can be changed by the user. The details for changing parameters are as follows.

User can set the invalid value such as 'n' to the parameter for using the same value. After finishing parameter setting, TOE10G-IP is reset and begins initialization process.

- Window Update Gap: Set threshold value to transmit window update packet. Valid value is 0x00 0x3F (0-63). The unit size of threshold value is 1 Kbyte. Default value is 0 (disable window update feature).
- FPGA MAC address: Input 12-digit of hex value. Add "0x" as a prefix for hexadecimal input.
- FPGA IP address: A set of four decimal digits is separated by ".". The valid range of each decimal digit is 0-255.
- FPGA port number: Valid range is 0-65535, except 21 which is control port number.
- Target IP address: A set of four decimals like FPGA IP address. This value is IP address of Test PC.
- Target port number: Valid range is 0-65535, except 21 which is control port number.
- 7) After finishing system initialization, main menu is displayed with four operations which are described in more details as follows.



Menu [0]: Run the FTP server

ange time created
isplay Host IP, user name, and assword
2 client

Figure 2-6 Run the FTP server

• Select '0' to run the FTP server. After that, three parameters for setting in FTP client application, i.e. Host IP, User name, and password are displayed. Now the user can open FTP client application on Test PC to connect with FTP server hardware.

Menu[0]						
+++ Run the FTP server +++						
Open FileZilla Host-IP : 192.168.7.42 USER NAME : doftp Confirmation message						
PASSHORD : admin User can press 'x' to disconnect FTP client						
Press 'y' to confirm : y						
FTP client is disconnected FTP is disconnected and						
CO] : Run the FTP server						
[1] : Display SSD information and change time created [2] : Change TOE1OG-IP parameter						
[3] : Shutdown the server						
Figure 2-7 Disconnect the FTP client						

• When there is no operation on FTP client application, the user can press 'x' to disconnect the FTP client and return to main menu, as shown in Figure 2-7 for running other operations.



Menu [1]: Display SSD information and change time created



- Select '1' to display the SSD information and change file created time. System information in SSD is displayed.
- Enter 'y' to change time created in the test system or other keys to use the same value.



Menu [2]: Change TOE10G-IP parameter



Figure 2-9 Change the TOE10G-IP parameter

• Select '2' to change the TOE10G-IP parameters. When user needs to change the FTP client to other PCs, the network parameters of the new PC must be set to reconnect the connection between FTP server and FTP client.



Menu [3]: Shutdown the server



- Select '3' to shutdown the server.
- Confirmation message is displayed on the console. User enters 'y' to confirm the operation or other keys to cancel the operation.
- After finishing shutdown the server, "Shutdown command is complete" is displayed on the console. It is the last message on the console and the system takes no response to any inputs from user. User needs to power off/on test system to restart the test operation.



3 FTP Client

This topic describes the details when running FTP server with FTP client software on PC.

3.1 Login FTP Server

To login FTP Server by FileZilla, the step is as follows.

- 1. Input server parameters following parameter recommended on the console.
 - a. Host IP : FPGA IP, set during initialization. Default value is 192.168.7.42.
 - b. Username : dgftp
 - c. Password : admin
- 2. Click "Quickconnect" button.

1a. Input Host IP = FPGA IP, displayed on the console								
🔀 dgftp@192.168.7.42 - FileZilla 1b. Input Username : dgftp								
<u>File Edit View Transfer</u>	Eile Edit View Iransfer Server Bookmarks Help New 1c. Input Password : admin							
	2 🎼 😣	🍡 🏷 🔰 🕰	S 🕷 /			2		
<u>H</u> ost: 192.168.7.42 Us	sername: dgftp	Pass	word:	<u>P</u> ort:	Quickconne	ct 💌		
Status: Connecting to	192.168.7.42:21.							*
Status: Connection es	tablished, waitir	ng for welcome mess	age					
Status: Insecure server Status: Server does no	r, it does not sup at support non-A	SCII characters.						
Status: Logged in	apport non y	isen entitacters.						
Status: Retrieving dire	ctory listing							
Status: Directory listin	ig of "/F008GB" :	successful	_					
		Login Success	5		Current direct	ory nam	ne is file	
l					Size III FTF Se	iver stu	nage	Ŧ
Local site: E:\DIR000\			•	Remote site /F008GE	}			-
DIR000				E 3 / F008GB				
DIROO2							Display files in	ר
Diroos			•				FTP Server storage	
Filename	Filesize	Filetype	Last modifi 📤	Filename	Filesize	Filetype	Last modified	Permiss
Jan 1997 - 1997			E	퉬				
0000000.BIN	8,589,934,5	BIN File	24/9/2561 1	0000000.BIN	8,589,934,	BIN File	11/11/2562 21:	
0000001.BIN	8,589,934,5	BIN File	24/9/2561 1	0000001.BIN	8,589,934,	BIN File	11/11/2562 21:	
0000002.BIN	8,589,934,5	BIN File	24/9/2561 1					
0000003.BIN	8,589,934,5	BIN File	24/9/2561 1					
0000004.BIN	8,589,934,5	BIN File	24/9/2561 1					
0000005.BIN	8,589,934,5	BIN File	24/9/2561 1 👻					
•	111		- F	•	111			•
32 files. Total size: 274,877,906,9	44 bytes			2 files. Total size: 17,179	9,869,184 bytes			
						۵ 🔇	Queue: empty	• •

Figure 3-1 Login FTP server

After finishing setting server parameter, the console shows logged in successful. Directory name shows file size set in the storage. For example, File size is 8 GB when directory name is F008GB. If FTP storage is not empty, file lists in the storage are displayed. The modified date and time of the file is equal to time created, set before running FTP server menu. <u>Note</u>: FTP client reads time zone from FTP server as UTC+0 time zone, but the time displayed on FTP client is adjusted to be user's time zone. For example, when created time before running FTP server menu is 14:02, modified time on FTP client is 21:02 in UTC+7 time zone.



3.2 Upload file

To upload file to FTP Server from Test PC by using FileZilla, user must prepare the uploaded file on Test PC. The status during uploading can be monitored on FileZilla for FTP client side and FPGA console for FTP server side. The step for uploading file is as follows.

Local site: E:\DIR000\	+	Remote site: /F008GB
		□ ³ 2 /
	-	
Filename Filesize Filetyne Select File to upload	Last modifie	Filename The latest file is 0000001.BIN, so the next file must be 0000002.BIN which has 8 CB size
to FTP server	24/9/2561 1	0000000.BIN 0,309,934, BIN FILE 11/11/2362 21:
0000001.BIN (1) 8,589,934,5 BIN File	24/9/2561 1	0000001.BIN 8,589,934, BIN File 11/11/2562 21:
0000002.BIN 8,589,934,5 BIN File	24/9/2561 11	
0000003.BIN 8,589,934,5 BIN File	24/9/256:	Upload
0000004.BIN 8,589,934,5 BIN File	24/9/256	Add files to queue 2
0000005.BIN 8,589,934,5 BIN File	24/9/256	Click Upload
♦ 000000 DTNI 0 E00 024 E DTNI F:I- ■ III	24 /0 /256	s p
Selected 1 file. Total size: 8,589,934,592 bytes		Edit 5
Server/Local file Direction Remote file		Create directory
Server/Local life Direction Remote life		Create directory and enter it
		Refresh
		Delete
		Rename
Queued files Failed transfers Successful transfers (2)]	
		🔕 🕜 Queue: empty 🛛 🔍 🧃

Figure 3-2 Upload file

- 1. Select the uploaded file in Test PC. The limitation of the uploaded file is as follows.
 - a. File name is XXXXXX.BIN (X is hex value). The value of uploaded file name must be equal or less than the next value of the latest file in FTP server storage. In Figure 3-2, the latest file is 0000001.BIN, so, the uploaded file must be 0000002.BIN or less.
 - b. File size of the uploaded file name must be equal to FTP server directory name. In the example, F008GB supports only 8 GiB (1024x1024x1024 byte) file.

<u>Note:</u> (1) File size can be changed by format operation only.

(2) For the new disk, the 1st file name must be 0000000.BIN.

2. Right-click on the selected file and select "Upload", as shown in Figure 3-2. <u>Note</u>: User can select multiple files on Test PC to upload to FTP server, but only one file is

transferred at a time.



	FPGA console	2			-					
(STOR) File 000002.BIN ((STOR) File 000002.BIN (8.589 (GB1>: 231.607 (8.589 (GB1>: 1.459 (GB 8.589 (GB1>: 2.688 (GB 8.589 (GB1>: 2.688 (GB 8.589 (GB1>: 5.146 (GB 8.589 (GB1>: 5.146 (GB 8.589 (GB1>: 5.46 (GB 8.589 (GB1>: 7.602 (GB 8.589 (GB)): 7.602 (GB 8.589 (GB)): 7.602 (GB 9.580 (GB)): 7.602 (GB)): 7.602 (GB 9.580 (GB)): 7.602 (GB)): 7.602 (GB 9.580 (GB)): 7.502 (GB)): 7.602 (GB 9.580 (GB)): 7.602	HB] a Disp J size J size	lay transfer every secor Display finishing	nd performar	nce after sferring]				
[STOR] File 0000002.BIN C Total = 8.589 [GB] , Time	omplete = 7806[ms] , Transfer s	peed = 1100[MB/	(b) s]	Ŧ						
🛃 dgftp@192.168.7.42 -	FileZilla			FileZi	illa					• 💌
<u>File Edit View Tran</u>	nsfer <u>S</u> erver <u>B</u> ookm	arks <u>H</u> elp	New version a	vailable!						
	🗱 🖸 🎼 😣	1, I) 🗉	E 🔍 🤗 (*						
Host: 192.168.7.42	Username: dgft	р	Pass <u>w</u> ord:	•••••		Port:	Quickconnec	t		
Status: Logged Status: Retriev Status: Directo Status: Insecur Status: Server Status: Logged Status: Status: Status: Status:	I in ing directory listing ry listing of "/F008GB" e server, it does not su Joes not support non-/ Lin y upload of E:\DIR000\0 prefer successful transf	successful pport FTP over ASCII characte 10000002.BIN	r TLS. rs.	1 records						▲ III
Status: Retriev Status: Directo	ing directory listing of ry listing of "/F008GB"	"/F008GB" successful	,552 bytes in 1	c						Ļ
					FileZilla	message	•			
Local site: E:\DIR000\	0 1 2 3			* 		F008GB	5			•
Filename	Filesize	Filetype	Last	modifie 🔦	Filenam	e	Filesize	Filetype	Last modified	Permiss
	8,589,934,5 8,589,934,5 8,589,934,5 8,589,934,5	BIN File BIN File BIN File	24/9 24/9 24/9	2561 1: /2561 1: /2561 1: /2561 1:	 00000 00000 00000	000.BIN 001.BIN 002.BIN	8,589,934, 8,589,934, 8,589,934,	BIN File BIN File BIN File	11/11/2562 21: 11/11/2562 21: 11/11/2562 21:]
0000003.BIN	8,589,934,5	BIN File	24/9	/2561 1.					/	
0000004.DIN	0,009,954,5	DINFIE	24/9	V2501 1. T			000002.BIN	is uprodue	a completely	
•	m			+	•					+
Selected 1 file. Total size	: 8,589,934,592 bytes				3 files. To	otal size: 25,769	9,803,776 bytes			
								🥸 🕐 Qi	ieue: empty	99

Figure 3-3 Status message during uploading file

- 3. During uploading process, user can monitor the progress on FileZilla or FPGA console.
 - a. Current transfer size of each file is displayed on the console every second.
 - b. After finishing uploading file, transfer speed is displayed on the console. *Note:*
 - (1) Transfer speed is limited by 10Gb Ethernet speed, FTP client storage performance, and data allocation of the file in the FTP client storage.
 - (2) The best performance is achieved when the test file on FTP client storage is created by exFAT-IP. More details of exFAT-IP demo are described in following document.

https://dgway.com/products/IP/NVMe-IP/dg_exfatip_nvme_instruction_en.pdf

- c. On FileZilla, total time and successful message are displayed as test status.
- d. The new uploaded file is available on FTP server storage. In the example, 0000002.BIN is available in the storage.



	Current t Press 'y'	іне created : <u>11/11/2</u> to change tiне creato	119, 14:02:08 ed => n
Organize	New	Open Se	lect
> DG_exFAT (F:) > DIR000	~	ට Search DIR000	م
Name	Date modified	Туре	Size
0000000.BIN	9/24/2018 5:35 PM	BIN File	2,097,152 KB
0000001.BIN	9/24/2018 5:35 PM	BIN File	2,097,152 KB
0000002.BIN	11/11/2019 2:02 PM	BIN File	2,097,152 KB
File equa Figu	is stored complete al to time created, s re 3-4 Uploaded	e) Ity and modified of set during initiality File in the SSI	date is zation

e. Figure 3-4 shows when directly connecting FTP server SSD to the PC, modified date of the new file is the same as the value set during disk initialization in Figure 2-3.



3.3 Download file

To download file from FTP Server to Test PC, user selects the downloaded file on FTP server through FileZilla for storing the file to the destination folder on Test PC. The step for downloading file is as follows.

Local site: E:\Down	nload\ R1FD R1FE R1FE R1FF ownload		•	F	Remot	te site: /F0 /]]} F008GE	08GB 3					•
Filename 0000000.BIN 0000001.BIN	8,589,934 8,589,934	size Filetype ,5 BIN File ,5 BIN File	Last modified 24/9/2561 17:3 24/9/2561 17:3		Filena 000 000 000	me Sele from 00001.BI(1 00002.BIN	ct File	e to ser	Filesize Filetype download ver to Test PC 8,589,934,592 BIN File Download	Last modi 11/11/256 11/11/256	ified 52 21: 52 21: 52 21:	Pern
2 files. Total size: 17,1	179,869,184 bytes		4	S	electe	d 1 file. Tot	al size: 8	Ì	View/Edit Click Down Create directory	load		4
Server/Local file	Directio	n Remote file			Size	Priority	Status		Create directory and enter if Create new file Refresh	t		
									Delete Rename Copy URL(s) to clipboard File permissions			
Queued files	Failed transfers Su	uccessful transfers (1)							🕼 🕜 Queue: e	mpty	•	•

Figure 3-5 Download file

- 1. Select the downloaded file from FTP Server storage.
- 2. Right-click on the selected file and select "Download", as shown in Figure 3-5. <u>Note</u>: User can select multiple files for downloading from FTP server, but only one file is transferred at a time.



	Serial c	onsole									
[RETR] File 000002.BIN <8 [RETR] File 000002.BIN <8	.589 [GB1> : 964.9 .589 [GB1> : 1.904 .589 [GB1> : 2.894 .589 [GB1> : 2.894 .589 [GB1> : 4.894 .589 [GB1> : 5.874 .589 [GB1> : 6.873 .589 [GB1> : 7.877	37 (HB) a (GB) [GB] (GB) [GB] (GB) [GB] (GB] (GB] (GB] (GB]	play transfer every second Display finishing	performa g file trans	nce after						
[RETR] File ODODOD2.BIN Co Total = 8.589 [GB] , Time	XETR) File 0000002.BIN Complete otal = 8.589 [GB], Time = 8725[ms], Transfer speed = 984[MB/s]										
daftn@102168742	- File7illa			FileZi	illa						
File Edit View Tra	nsfer Server B	ookmarks Help	New version a	vailable!							
]# 0 ₩	8 🕵 🕄	T 🔍 🧕 🖉	•							
<u>H</u> ost: 192.168.7.42	<u>U</u> sername:	dgftp	Pass <u>w</u> ord:	•••••		<u>P</u> ort:		Quickconnect			
Status: Discor Status: Retriev Status: Director Status: Conne	inected from serve ring directory listin ory listing of "/F00 ecting to 192.168.7.	r g of "/F008GB" 8GB" successful 42:21									*
Status: Conne Status: Insecu	ection established,	waiting for welco	me message		-						
Status: Server	does not support	non-ASCII charac	ters. FileZilla	message	Ļ						
Status: Logge Status: Startin	<u>d in</u> g download of /F0	08GB/0000002.BI	N	(c)						_
Status: File tra	nsfer successful, t	ansferred 8,589,9	34,592 bytes in 1	1 seconds							-
Local site: E:\Downloa	ad/			•	Remote	site: /F0	08GB				-
DIR1	FD FE FF nload			^ 	= ? / 	F008G	3				
Filename	File	size Filetype	Last	modified	Filenam	e ^		Filesize	Filetype	Last modified	Pern
Jan 1997 - 1997					. .						
0000000.BIN	8,589,934	,5 BIN File	24/9	/2561 17:3	00000	00.BIN		8,589,934,592	BIN File	11/11/2562 21:	
0000001.BIN	8,589,93	5 BIN File	24/9	/2561 17:3	00000	01.BIN		8,589,934,592	BIN File	11/11/2562 21:	·
0000002.BIN	8,589,934	d d	11/3	/2563 15:24	00000	IOS'RIM		8,589,934,592	BIN File	11/11/2562 21:	
	0000002.BIN i	s downloaded	completely								
•				4	•						÷.
3 files. Total size: 25,769	,803,776 bytes				Selected	1 file. Tot	al size: 8,	589,934,592 bytes			
	🔕 🔞 Queue: empty 🛛 🗢 🚽										

Figure 3-6 Downloading File

- 3. During downloading file, user can monitor the progress on FileZilla or FPGA console like uploading process.
 - a. Current transfer size of each file is displayed on the console every second.
 - b. After finishing downloading file, transfer speed is displayed on the console. <u>Note</u>: Transfer speed is limited by 10Gb Ethernet speed and FTP client storage performance.
 - c. On FileZilla, total time and successful message are displayed as status.
 - d. The new downloaded file is available on Test PC. For example, 0000002.BIN is the new file downloaded from FTP server.



4 Revision History

Revision	Date	Description
1.0	4-Apr-20	Initial version release
2.0	22-Jul-20	Remove FPGA setup from the document