



Camera SerDes Starter Kit

Quick Start Guide



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	ounder Coningunation List		
No.	ltem	Description	Comment
1	THEVA241A-RJ45-V1	Tx Board	Included in THEVA24-RJ45-SET-V1
2	THEVA242A-RJ45-V1	Rx Board	Included in THEVA24-RJ45-SET-V1
3	Cable	Ethernet Cable	Included in THEVA24-RJ45-SET-V1
4	UC930	Frame Grabber	Included in THEVA-GRABBER-V1
5	USB Cable	USB 3.0 Cable	Included in THEVA-GRABBER-V1
6	AC Adapter	DC 12V Output	Included in THEVA-GRABBER-V1
7	Camera Module	Supported Camera Module	Needed to prepare by a user

1. Product Configuration List

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2. Connection

Connect with All Systems of Camera SerDes Starter Kit as below.





3. USB Driver

3.1. Download the USB Driver for UC930 from the download page (Access to the page is available after Starter Kit user registration).

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Settings		
 Setting files for FSM-IMX327C (FHD60) FSM-IMX327C_FHD60.zip (1/12/2023) Setting files for FSM-IMX335C (5M30fps) FSM-IMX335C_5M30fps.zip (1/12/2023) Setting files for FSM-IMX415C (5M60fps) FSM-IMX335C_5M60fps.zip (1/12/2023) Setting files for FSM-IMX415C (8M30fps) FSM-IMX415C_8M30fps.zip (1/12/2023) Setting files for FSM-IMX415C (8M60fps) FSM-IMX415C_8M60fps.zip (1/12/2023) 		
Others		
THEVA-GRABBER-V1 Driver DOTHINKEY_USB3.0_Driver.zip 1/12/2023) Camera SerDes Starter Kit GUI Tool dtTest2_Car_Camera_V2.0.26.8_20221013.zip (1/12/2023) GUI-Based Register Generator		

VDesignTool-HS_V068.zip (1/23/2023)

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Save the downloaded DOTHINKEY_USB3.0_Driver.zip compression file to the computer.



3.2. USB 3.0 Driver Install

- 3.2.1. USB 3.0 Cable of UC930 connects with the PC and connects the +12V AC Adapter to the power source and then push the red button for power to turn on.
- 3.2.2. If the UC930 device is detected in Device Manager on the PC, proceed with the Update driver.



If the update is completed, you can see the device of `DOTHINKEY USB3.0 ImageKit` in the Device Manager.





4. DtTest Software Tool

4.1. Download the DtTest software tool from the download page (Access to the page is available after Starter Kit user registration).

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	Settings		
	 Setting files for FSM-IMX327C (FHD60) FSM-IMX327C_FHD60.zip (1/12/2023) Setting files for FSM-IMX335C (5M30fps) FSM-IMX335C_5M30fps.zip (1/12/2023) Setting files for FSM-IMX335C (5M60fps) FSM-IMX335C_5M60fps.zip (1/12/2023) Setting files for FSM-IMX415C (8M30fps) FSM-IMX415C_8M30fps.zip (1/12/2023) Setting files for FSM-IMX415C (8M60fps) FSM-IMX415C_8M60fps.zip (1/12/2023) 		
	 Others THEVA-GRABBER-V1 Driver DOTHINKEY_USB3.0_Driver.zip (1/12/2023) Camera SerDes Starter Kit GUI Tool dtTest2_Car_Camera_V2.0.26.8_20221013.zip 1/12/2023) GUI-Based Register Generator VDesignTool-HS_V068.zip (1/23/2023) 		~

Save the downloaded dtTest2_Car_Camera_Vx.x.xx.yyyymmdd.zip compression file to the computer and unzip the file.



4.2. Download the initial settings files that a user needs from the download page (Access to the page is available after Starter Kit user registration).



Others

- THEVA-GRABBER-V1 Driver
 DOTHINKEY_USB3.0_Driver.zip (1/12/2023)
- Camera SerDes Starter Kit GUI Tool dtTest2_Car_Camera_V2.0.26.8_20221013.zip (1/12/2023)
 GUI-Based Register Generator
- VDesignTool-HS_V068.zip (1/23/2023)

Save the downloaded compression files to the computer and unzip the file.



- 4.3. Double-click the folder named "dtTest2_Car_Camera_Vx.x.xx.yyyymmdd" you just downloaded and unzipped.
- 4.4. Double-click the executable file named "dtTeste.exe" to open the tool execution window.

If the connection is successful, the UC930 device is detected on the left side of the execution window.

	🚨 DOT	HINKEY	dtTest2_0	Car_Came	ra_V2.0.2	6.8 Cam	era1(No s	Sensor)					
	SAVE	PIN	Config	PLAY	DEBUG	OPTION	->Center	SETUP	AF	FAR	NEAR	VIDEO	EXIT
	Enum Der	/ Device	#1: UC93	0#00105 <u></u>	•								
	Test Sel	Device U: INO	#1: UC93	0#001055#	₩								
DtFunc.dll													
DtlpCon.dll													
👯 dtTeste.exe													
EnCode.dll													
encode2.dll													

- 4.5. I/O Pin of UC930 Settings
 - ① PIN \rightarrow ②MIPI std \rightarrow ③OK

E DOTHINKEY dtTest2_Car_Camera_V2.0.26.8 Camera1(No Sensor)					
SAVE PIN Config PLAY DEBUG OPTION ->Center SETUP AF FAR NEAR VIDEO I	EXIT O	nly_Grab 4: Fit Size			
Enum De Dette : UC930+0010: •					
Test Sel 0: No test					
	DOTHINK	EY Pin Setup	_	×	
	-PIN(HS	100 IO)	e Devellet	A ITY IOD	
	C LVE	DS	C Parallel C MU960) Parallel	
	IO1 NO	-	IO14 HSYN	4C -	
	102 D0	•	IO15 VSYN	IC •	
	IO3 D2	•	IO16 NC	٠	
	IO4 D1	· ·	IO17 NC	•	
	IO5 D3	3 •	IO18 MCL	К 💌	
	106 D4	1 -	IO19 PWDI	N 💌	
	107 D5	5 -	IO20 RESE	· ·	
	108 D6	5 -	IO21 SCL		
	109 D7	· ·	IO22 SDA	-	
			1023 P02	- -	
		· ·	1024 PWD	NZ •	
	1012/100	· ·	1025 NO	-	
	TOTELLO	-LK I	1020 NC	-	
	Save	e MIPI	Std	OK	
	Load	d Paralle	L Std	Cancel	
			oid		
		LVDS	Std		
		New Para	illel Std		
				_	

4.6. Power Supply Settings

① OPTION → ② OK (No password is needed.) → ③ CLK LP Box check → ④DOVDC(1800mV) → ⑤ VPP(5000mV) Box Check → ⑥ OK

2 DOTHINKEY dtTest2_Car_Camera_V2.0.26.8 Camera1(No Sensor)	DOTHNKEY dtTest2_Car_Carrera_V2.0.26.8 Carrera1(No Sensor)
SAVE PDN Config PLAY DEBUG OPTION Centre SETUP AF FAR NEAR VIDEO EXIT Ordy_Goab 4:Fit Save	SAVE 205 Could PLAY DEBUG COTION -Could EXTLP AT 762 3/24E 10260 EXTL Cop_Oat 4.Fr Em
Eron Der Devise 41 COSTONDE	Emm Rev Denina 41 COSDAULUS • Tential 12 Norman •
	Option() you use Specified servar, lefect Verdor and IC and then click #1 or #2) X
	Receiver Setting C/D_FHY C/D_FHY Check VSWC 06 and 0 1 0 0 MIPI type D-PHY - - Check In Strice Check Receive In Strice Check Receive
Please input pastword X	- Sensor Rower/MCUK
Current	APIC [200 mV F ON VP 200 mV F ON AVCC 100 mV F ON AVCC 100 mV F ON
New Pass:	AUXI 1000 mV r ON Power/Mok r Use Dafas
Confirm	Other Show Finor Show Show Crass Show Show Crass Show The Crass Show Crass <t< td=""></t<>
OK	01
	ritinetries (points)



4.7. Please press 'L' on the keyboard to load the initial settings file.

Open the selected initial settings file to proceed with the initial setup of all devices for image output. Ex.) IMX415_8M30fps_4LANE_891Mbps_2MAINLINK_CV241A_CV242A_Passthrough.ini

AUG OPTION DECEMENT SETUP AF EAR MEAR VIDEO EXIT Only_Grab 4: Fit Size -	_	_	_	_	_	_	-
							×
← → ↑ ↑ ↓ «	> FSM-IMX415C_8M60f	ps v	C	,D Se	rch FSM-II	/X415C_8	M60f
Organize • New folder					800	- п	0
OneDrive Name	Date modified	Туре	Size				
IMX415_8M60fps_4LANE_1485Mbps_2MAINLINK_CV241A_CV242A_Passthroughini	1/26/2023 10:55 AM	Configuration setti		8 KB			
3 D Objects							
Desktop							
Documents							
- Downloads							
J Music							
Pictures							
Videos							
L Windows (C:)							
SUHC Card (U)							
File name: IMX335_5M60fps_4LANE_1188Mbps_2MAINLINK_CV241A_CV242A_Passthrough.ini			~	Ini File(*	ini)		~
				Op	in .	Cance	9
			_			_	

% Select the appropriate initial settings file for the sensor connected to THEVA241A-RJ45-V1.



4.8. Once the initial setup is completed, the camera image output can be viewed on the dtTest2 tool.





 $4.9. \hspace{0.5cm} \text{Simply adjust the image by entering the ISP Menu after outputting the image.}$

Adjust color easily with Auto White Balance (AWB).

cok +	orchecker Incissio	-	_	ISP Settings	×
	Debug - GPIO PIN - Reset: O C @ 1	Focus Far () Near	RwSensorMuttiRegs	Skip ISP - RAW To RGB NORMAL	Dead Clean
- 1	Padn: 0 0 0 1 Padn2: 0 0 0 1 Set	ISP Format 2:cb/Cr//GB_RG • ISP(Raw Sensor)		Clear Dead Control HotCpth DeadCpth Permeability Control Gemma	200 20
	Find I2C Addr Mode 3:StMicro Mod • Addr Reg Value Ca 1b 007c	- Raw :Exposure Control Scene Scene2: Full T Lock		Contrast Clarity Control Sharpness	0
	File Write Read Write	DoTime TTTTTTT Gain TTTTTTTT Gain	Mode: 3:Addr_32bit Addr: Ca Reg:	Color Enhance Seturation Gain Control Matrix G	-j 128
	2.ini 3.ini	Send	Size: Value Value Value Value Value	G Gain	86 72
+ S xrit	te			AW8	

If "AWB" is applied, the image will change as follows.





4.10. MIPI Signal Information Window

It can check MIPI information by pressing 'I' on the keyboard while the image is output.

Ex.) MIPI Status information, Frames, Stream...





Notices and requests

- 1. The product specifications described in this material are subject to change without prior notice.
- 2. The circuit diagrams described in this material are examples of the application which may not always apply to the customer's design. THine Electronics, Inc. ("THine") is not responsible for possible errors and omissions in this material. Please note even if errors or omissions should be found in this material, THine may not be able to correct them immediately.
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- 5.1 Application of this product is intended for and limited to the following applications: audio-video device, office automation device, communication device, consumer electronics, smartphone, feature phone, and amusement machine device. This product must not be used for applications that require extremely high-reliability/safety such as aerospace device, traffic device, transportation device, nuclear power control device, combustion chamber device, medical device related to critical care, or any kind of safety device.
- 5.2 This product is not intended to be used as an automotive part, unless the product is specified as a product conforming to the demands and specifications of IATF16949 ("the Specified Product") in this data sheet. This accepts no liability whatsoever for any product other than the Specified Product for it not conforming to the aforementioned demands and specifications.
- 5.3 THine accepts liability for demands and specifications of the Specified Product only to the extent that the user and THine have been previously and explicitly agreed to each other.
- 6. Despite our utmost efforts to improve the quality and reliability of the product, faults will occur with a certain small probability, which is inevitable to a semi-conductor product. Therefore, you are encouraged to have sufficiently redundant or error preventive design applied to the use of the product so as not to have our product cause any social or public damage.
- 7. Please note that this product is not designed to be radiation-proof.
- 8. Testing and other quality control techniques are used to this product to the extent THine deems necessary to support warranty for performance of this product. Except where mandated by applicable law or deemed necessary by THine based on the user's request, testing of all functions and performance of the product is not necessarily performed.
- 9. Customers are asked, if required, to judge by themselves if this product falls under the category of strategic goods under the Foreign Exchange and Foreign Trade Act.
- 10. The product or peripheral parts may be damaged by a surge in voltage over the absolute maximum ratings or malfunction, if pins of the product are shorted by such as foreign substance. The damages may cause a smoking and ignition. Therefore, you are encouraged to implement safety measures by adding protection devices, such as fuses.