user manual

pco.Silicon Software grabber & driver installation





Excelitas PCO GmbH asks you to carefully read and follow the instructions in this document. For any questions or comments, please feel free to contact us at any time.



An Excelitas Technologies Brand

telephone:	+49 (0) 9441 2005 50
fax:	+49 (0) 9441 2005 20
postal address:	Excelitas PCO GmbH Donaupark 11 93309 Kelheim, Germany
email:	pco@excelitas.com
web:	www.pco.de

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1 Introduction

Instructions for installing and testing the *Silicon Software microEnable IV (mEIV)* Camera Link grabber card and the *Silicon Software micro Enable V (mEV)* CLHS FOL grabber card for Microsoft Windows and Linux (Ubuntu 20.04) operating systems.

These cards are required to be able to use a pco.edge with Camera Link interface or CLHS FOL interface.

Frame grabber installation must be performed by a technican, because high voltages can occur on single parts of your computer.

On 64bit systems by default 64bit and 32bit Runtime is installed. Optional only the 64bit runtime can be installed.

Silicon Software mEIV AD4/VD4 grabber card (for Linux only VD4 grabber card)



Note: Deactivate power saving settings of your computer.

The variables for ambient temperature must be observed and sufficient air flow to the grabber card must be ensured in the computer, see SiSo documentation.

1.1 Installation order

Steps	Description
First step	Install Silicon software runtime installation
Runtime	See chapter 2
Second step	Install grabber card to your computer
Grabber card	See chapter <u>4</u>
Third step	Run microDiagnostics Tool
microDiagnostics	See chapter 5
Fourth step	Update the firmware of your grabber card
Firmware upgrade	Follow the instructions
Fourth step	mEIV grabber
Firmware upgrade	See chapter <u>5.1</u>
Fourth step	mEV grabber
Firmware upgrade	See chapter <u>5.2</u>
Fifth step	Apply board & Performance test
Performance	See chapter <u>5.3</u>
Final step	Start camware

2 Installing runtime

2.1 Linux

Install the PCO SiliconSoftware Grabber Runtime debian package pco.siso-runtime_5.7.5_amd64.deb using

sudo dpkg -i pco.siso-runtime_<version>_amd64.deb

or

```
sudo apt-get install ./pco.siso-runtime_<version>_amd64.deb
```

After installation has finished your system needs to be rebooted.

2.2 Windows

```
Start PCO_SiliconSoftware Grabber Runtime Installation package PCO_DI_SILICONSOFTWARERUNTIME_<version>.exe and follow the instructions.
```

The installer package includes the installation of the SiliconSoftware Runtime and all necessary applet packages and files, which are necessary to work with pco.cameras.

Follow the steps in this order.

-						-	
Startseite der Systemsteuerung	Programm deinstallieren oder ändern						
Installierte Updates anzeigen	Wählen Sie ein Programm aus der Liste aus, und klicke	n Sie auf "Deinstallieren", "Ände	rn" oder "Reparierer	n", um es zu de	installieren.		
Windows-Features aktivieren oder deaktivieren	-						
Programm vom Netzwerk	Organisieren 👻 Deinstallieren					DE •	0
installieren	Name	Herausgeber	Installiert am	Größe	Version		^
	Microsoft Visual Studio Professional 2013	Microsoft Corporation	17.02.2020	5,65 GB	12.0.21005.13		
	Mozilla Firefox 68.4.1 ESR (x64 de)	Mozilla	14.02.2020	185 MB	68.4.1		
	Wotepad++ (64-bit x64)	Notepad++ Team	14.02.2020	9,62 MB	7.8.4		
	NVIDIA 3D Vision Treiber 388.13	NVIDIA Corporation	14.02.2020		388.13		
	NVIDIA Grafiktreiber 388.13	NVIDIA Corporation	14.02.2020		388.13		
	NVIDIA HD-Audiotreiber 1.3.35.1	NVIDIA Corporation	14.02.2020		1.3.35.1		
	pco.usb3 Driver Installation	PCO AG	14.02.2020		2.4.0.1		
	Silicon Software mE5 MA-AF2 Applets 1.8	Silicon Software GmbH	17.02.2020	32,2 MB	1.80		
	Silicon Software Runtime 5.5.1_68121	Silicon Software GmbH	17.02.2020	1,30 GB	5.5.1		
	SiliconSoftware CISerCOMWrapper	Silicon Software GmbH	17.02.2020	3,21 MB			
	5 Sophos Endpoint Agent	Sophos Limited	14.02.2020		2.5.5		
	1.12.2.28653 (64 bit)	TortoiseSVN	17.02.2020	56,1 MB	1.12.28653		
	Real Windows-Treiberpaket - Silicon Software GmbH micr	Silicon Software GmbH	17.02.2020		07/02/2018 1.3.0.0		
	Real Windows-Treiberpaket - Silicon Software GmbH micr	Silicon Software GmbH	17.02.2020		06/21/2018 4.4.0.0		
	III XnView 2.32	Gougelet Pierre-e	17.02.2020	17,1 MB	2.32		~

Figure 2.1: uninstall former versions.

Uninstall former versions of Silicon Software runtime. e.g. use link from programs and features in control panel.



Figure 2.2: start.

Start installation.

PCO SiliconSoftware Grabber Runtime v5.7.0 Installation	– 🗆 ×
Installing	
😣 Setup - Silicon Software Runtime	− □ × ^{nstalled.}
Installing Please wait while Setup installs Silicon Software Runtime on your	computer.
Extracting files C:\Program Files\SiliconSoftware\Runtime5.7.0\supp\dpinst.exe	
	time_5
	(PE=cus 🔽
	Cancel
pco.software	

Figure 2.3: 64-bit version.

Setup Silicon Software 64Bit is executed.

PCO SiliconSoftware Grabber Runtime v5.7.0 Installation -	- 🗆 🗙
Installing	
😣 Setup - Silicon Software Runtime — 🗆 🗡	nstalled.
Installing Please wait while Setup installs Silicon Software Runtime on your computer.	PE=custom /Dir
Extracting files C: \Program Files (x86)\SiliconSoftware\Runtime5.7.0\drivers\me4\CHANGELOG.txt	
	PE=cus
	/TYPE=
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	urned 0
	er\unins
	YPE=cus 💙
Cancel	Cancel
pco.software	

Figure 2.4: 32-bit version.

Setup Silicon Software 32Bit is executed.

PCO SiliconSoftware Grabber Runtin	ne v5.7.0 Installation	-		\times
pco.				
	Completing PCO SiliconSoftware Grabb v5.7.0 Installation Setup	er Runt	ime	
	PCO SiliconSoftware Grabber Runtime v5.7.0 Installation has bee computer.	n installed on	your	
	Click Finish to dose Setup.		Cancel	
pco. software				

Figure 2.5: finished installation.

Installation is finished. Start the microDiagnostics tool (see chapter 5).

3 Uninstalling runtime

3.1 Linux

Uninstall the PCO SiliconSoftware Grabber Runtime using

```
sudo dpkg --purge pco.siso-runtime
```

or

```
sudo apt-get purge pco.siso-runtime
```

After uninstallation has finished your system needs to be rebooted.

3.2 Windows

Either use link from "Programs and Features" in "Control Panel" or start Installation Package PCO_DI_SILICONSOFTWARERUNTIME_5_7_3.exe again and use remove option of maintenance page.

→ ✓ ↑ n > Systemste	suerung > Alle Systemsteuerungselemente > Programme	und Features			v ð "Program	me und Features"	d
Startseite der Systemsteuerung	Programm deinstallieren oder ändern						
Installierte Updates anzeigen	Wählen Sie ein Programm aus der Liste aus, und klicke	n Sie auf "Deinstallieren", "Ände	ern" oder "Reparierer	n", um es zu de	installieren.		
Windows-Features aktivieren oder deaktivieren	-						
Programm vom Netzwerk	Organisieren 👻 Deinstallieren					022	•
installieren	Name	Herausgeber	Installiert am	Größe	Version		
	Microsoft Visual C++ 2010 x64 Redistributable - 10.0	Microsoft Corporation	17.02.2020	12,1 MB	10.0.30319		
	I Microsoft Visual C++ 2010 x86 Redistributable - 10.0	Microsoft Corporation	17.02.2020	9,89 MB	10.0.30319		
	BMicrosoft Visual C++ 2012 Redistributable (x64) - 11	Microsoft Corporation	17.02.2020	20,5 MB	11.0.60610.1		
	Microsoft Visual C++ 2012 Redistributable (x86) - 11	Microsoft Corporation	17.02.2020	17,3 MB	11.0.60610.1		
	Microsoft Visual C++ 2013 Redistributable (x64) - 12	Microsoft Corporation	18.02.2020	20,5 MB	12.0.30501.0		
	Hicrosoft Visual C++ 2013 Redistributable (x86) - 12	Microsoft Corporation	17.02.2020	17,1 MB	12.0.30501.0		
	Microsoft Visual Studio Professional 2013	Microsoft Corporation	17.02.2020	5,65 GB	12.0.21005.13		
	😉 Mozilla Firefox 68.4.1 ESR (x64 de)	Mozilla	14.02.2020	185 MB	68.4.1		
	Wotepad++ (64-bit x64)	Notepad++ Team	14.02.2020	9,62 MB	7.8.4		
	NVIDIA 3D Vision Treiber 388.13	NVIDIA Corporation	14.02.2020		388.13		
	NVIDIA Grafiktreiber 388.13	NVIDIA Corporation	14.02.2020		388.13		
	NVIDIA HD-Audiotreiber 1.3.35.1	NVIDIA Corporation	14.02.2020		1.3.35.1		
	PCO SiliconSoftware Grabber Runtime v5.7.0 Installati	PCO AG	18.02.2020		5.7.0002		
	pco.usb3 Driver Installation	PCO AG	14.02.2020		2.4.0.1		
	Silicon Software mE5 MA-AF2 Applets 1.8	Silicon Software GmbH	18.02.2020	32,2 MB	1.8@		
	Silicon Software Runtime 5.7.0.76380M	Silicon Software GmbH	18.02.2020	285 MB	5.7.0.76380M		
	Sophos Endpoint Agent	Sophos Limited	14.02.2020		2.5.5		
	@* TortoiseSVN 1.12.2.28653 (64 bit)	TortoiseSVN	17.02.2020	56,1 MB	1.12.28653		
	Real Windows-Treiberpaket - Silicon Software GmbH micr	Silicon Software GmbH	17.02.2020		07/02/2018 1.3.0.0		
	💐 Windows-Treiberpaket - Silicon Software GmbH micr	Silicon Software GmbH	17.02.2020		06/21/2018 4.4.0.0		
		Constant Planners	17.02.2020	17.1 MD	2.22		

Figure 3.1: uninstall runtime.

Uninstall from Control Panel.



Figure 3.2: remove package.

Uninstall with installation package.

4 Install grabber card to PC

The Silicon Software frame grabber card must be installed to your computer.

Electric shock warning due to voltage parts inside. Risk of injury due to electric shock.

• Always pull mains plug before opening the computer.





Figure 4.1: mEIV.

Installation of *new components* to a computer should only be performed by a *technician* or *qualified personal*.

- Shutdown your computer.
- Unplug it from mains.
- Open the computer case.
- Install the frame grabber card to a propper slot.
- mEIV: PCI Express x4 (Gen1), DMA900.
- Start your computer.



Figure 4.2: mEV.

Installation of *new components* to a computer should only be performed by a *technician* or *qualified personal*.

- Shutdown your computer.
- Unplug it from mains.
- **Open** the computer case.
- *Install* the frame grabber card to a propper slot.
- mEV: PCI Express x4 (Gen2), DMA1800.
- Start your computer.



Figure 4.3: device manager 1. (Windows only)



Figure 4.4: device manager 2. (Windows only)

Device manager (Windows only):

The grabber card should be displayed within the device manager. If the device is not shown this way, please reinstall the *Silicon Software device driver*.

Windows short-cut for device manager: press windows + pause/break key.

5 Micro diagnostics tool

microDiagnostics Tool works with mEIV (AD4 / VD4) and mEV frame grabber cards.

📷 🝙 📷 👂								
rame Grabber								
Type	Board ID	Serial	Firmware Version	Driver Version	License	Security code	PCI Express Speed	
microEnable IV AD4-CL (0xa42	0	A4290081	1.13 (hex: 1.0d)	4.4.0 (Win64)	no license	not present	Gen 1 x4	

Figure 5.1: microDiagnostics.

Run various diagnostic routines directly on the frame grabber, including *Applets* test, *Board* test, *Performance* test.

Linux On Linux the microDiagnostics tool can be started simply by calling microDiagnostics in the terminal.

5.1 MEIV grabber firmware upgrade

Upgrade to the latest firmware for your Silicon Software *mEIV* frame grabber.

This is only necessary, if the latest firmware is not installed to your frame grabber!

Firm Log	osis Applets Board Performance are History	microEnable IV A	D4-CL (bra4290 Version 1.1)	081) 3	Firmware	Loodinter	Remark microEnat Flashing Re 1. Selec 2. Selec 2. Selec 3. Click	S: It IV Boards w Frame Grabber() toon finance: "Cld: on EU, * or, Right Clds. select Load Ne on "Right Now" # 1 select Now" # 1	i). on the table, or Finnware'. If to open the	^
nicus	iacnostics Version 5.7.07632	Web					4. Clok	dalog on "Flash" 		×
File Diag	nosis Tools Info									~
in 🏴	🖲 🐜 🔎									
Frame Gra	. Select new Firmware									~
Type 📸		Programme > 1	SiliconSoftware	> Runtime5.7.0	Firmware > mE4AD4	CL.	v ð		4-CL° durchsu	chen
	Orpanisieren • N	euer Ordner							а - п	0
	Bider #	^ Name	^		Anderungsdatum	3,0	Groß			
	0 1_Convert_work	i firmez	re_Ad4CL-a42-0	01-0d.hap	16.01.2019 08:34	HAP-Datei		849 KB		_
	I NUMPER									
	Desktop Desktop Dokumente Downloads Munik Wrideos Songate Expansi System,C (C3)									
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Tricrol	Decistop Dektop Dektop Devisor Devisor Videos Seogate Expansi System, C (C) C C C C	* ateiname fiimwa	re_Ad4CL-a42-(DI-Oct.hap			~	HAP files (".h	ip) Abbrec	v hen X
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Tite Dia File Dia Frans Gr Type	Deistop Deistop Dekumete Dennicadt Manik Videos Sogate Opnosia	tteiname: <u>fremva</u> 11 Wim64	re, Ad4CL-a42.0 Serial	31-00 hap	Driver Version L	cense Securit	v code PD	HAP files (".hu Offinen	ip) Abbrec — 🗆	> hen X

Figure 5.2: microdiagnosticstool.

- Click Firmware. (1)
- Click Load new applet. (2)
- Select the appropriate hap file. (3)
- Click Flash now. (4)

×
Close

Figure 5.3: flash dialog 1.

Flash dialog opens.

• Click Flash. (5)

e Diagnosis Tools Info									
Туре	Board ID	Serial	Firmware Version	Driver Version	License	Security c	ode Pi	CI Express Speed	
🏥 microEnable IV AD4-CL (0xa42)	0	A4290081	1.13 (hex: 1.0d)	4.4.0 (Win64)	no license	not preser	nt Ge	en 1 x4	
💗 Flash Dialog						r .		×	
Apple Board Perfor Firmware Hist Log	ancel	nec i.a)			6			ting the second se	ne table, rmware' open th
							Control	Function	
							۵	Select new Applet/Firm be flashed.	ware to
							8	Remove selected Apple Firmware.	et/
							G	Replace (only selects,	without

Figure 5.4: flash dialog 2.

Now it is successfully flashed.

• Close this dialog. (6)

You must **shut down** (a restart is insufficient) your computer **completely** after the firmware upgrade for the changes to take effect.

ne Grabber							
microEnable IV-FULL x	Board ID 4 (0xa44) 0	Serial A44902EC	Firmware Version 1.53 (hex: 1.35)	Driver Version 4.4.0 (Win64)	License Dual-VA/SMA (0x11)	Security code	PCI Express Speed
Diagnosis	Name		DLL version	Result	Error Message		
Doard	💺 DualAreaGray16	dll	1.2	SUCCEEDED			
Performance	DualLineGray16 EullOreaGray8 d	.dll II	1.2	SUCCEEDED			
Firmware History	FullAreaGrav8 F	n AS dil	1.0	SUCCEEDED			
.oq	in runnicuologo_r	13.011	1.0	JUCCLUUD	-		

Figure 5.5: select diagnosis.

Last step: Select Diagnosis -> Applets

Result must be: *succeeded*.

5.2 MEV grabber firmware upgrade

Preparations

All steps described in the following chapter for the meV marathon AF2 grabber can also be used in the same way for the meV VF2 grabber.

Latest firmware applet for the grabber card is already copied during installation. Check firmware version on the grabber card using the microDiagnostics software is described below. PCO cameras only use firmware applet Acq_DualCLHSx1AreaRAW.

Firmware upgrade

This is only necessary, if the latest firmware is not installed to your frame grabber!

104.4										
Frame Grabbe										
Type		Board ID	Serial	Firmware Ve	rsion Drive	Version	License	Security code	PCI Express Speed	
🔎 📸 mES	marathon AF2 (0x752)	0	75200042	2.4 (hex: 2.04) 1.3.0 (Win64)	no license	not present	Gen 2 x4	
Y Disgnosis										
V Diagnosis	plets	e			DLL version	Result	Error	Message		
✓ Diagnosis An ■ Be	plets Nam	e Acq_DualC	LHSx1AreaR4	w.dli	DLL version 3.1	Result SUCCEE	Error	Message		
V Disgnosis A B C P P F P C	plets ard formance	Acq_DualC Acq_Single FrameGrah	LHSx1AreaRA CLHSx2AreaF	w.dii XW.dii	DLL version 3.1 2.1	Result SUCCEET SKIPPED	Error	Message		

Figure 5.6: MEV grabber 1.

First test, if a proper firmware is installed.

Select Diagnosis -> Applets (1)

If test result for Acq_DualCLHSx1AreaRAW.dll respectively libAcq_DualCLHSx1AreaRAW.so is *skipped* an update is required. (2)

Select Diagnosis -> Firmware.



Figure 5.7: MEV grabber 2.

The current *Applet* must be updated.

Click *Load new applet* (3) and select the new Acq_DualCLHSx1AreaRAWDLL.

-> 🗠 🛧 📙 « Pro	gramme > SiliconSoftware > Runtime5.7	7.0 > DII > mE5-MA-AF2	~	ი რ	E5-MA-AF2" durchsuchen
nisieren 🔻 Neuer	Ordner				iii 🕶 🔲 🔞
Bilder 🖈 ^	Name	Änderungsdatum	Тур	Größe	
1_Convert_worki	Acq_DualCLHSx1AreaRAW.dll	30.11.2018 10:08	Anwendungserwe	8.543 KB	
3_new_camware	Acq_SingleCLHSx2AreaRAW.dll	30.11.2018 10:08	Anwendungserwe	7.617 KB	
Pool (\\pco.de\E	FrameGrabberTest.dll	16.04.2018 11:51	Anwendungserwe	7.763 KB	
test_cvdlg_qt4uk					
OneDrive - Excelit					
Dieser PC					
3D-Objekte					
Bilder					
Desktop					
Dokumente					
Downloads					
Musik					
Videos					
Seagate Expansio					
System_C (C:)					
Laufwork D (Da)					

Figure 5.8: MEV grabber 3.

Click **Open**. (4)

type	Board IL	> Senal	Firmware Version	Univer Version	License	Security code	PCI Express Speed				
mE5 marathon AF2	(0x752) 0	75200042	2.4 (hex: 2.04)	1.3.0 (Win64)	no license	not present	Gen 2 x4				
Ri Applets	i								Remar	ks:	1
Board Performance	-0. m55 marat	hop A52 (0x753	2000420						mE5 Mar	athon/LightBridge Boards	
Firmware Firmware History		INTER OUT A							mES Marath partitions; e	on/LightBridge boards contain 8 ach contains 1 applet. This allows	
9	In	fo			Applet				without re-f	lashing the board. Partition 0	
	0	🕲 🕲 CLH	IS-F2_Standard_2x2_Ra	yw.					contains sat	e connguration.	
	1 😃	🛇 🕑 (Sel	ected: Acq_DualCLHS	ix1AreaRAW.dll) -	Acq_DualCLH	ix1AreaRAW		🖸 🕄	applet(s) an	d their info, and allows flashing	
	2							0	Electrice B	an Analatica	
	3								1 Colu	ew Apprec(s)	
	4							0	2. Sel	ct new applets:	
	5							0		• or, Right Click on the partition	
								170 IC		New Applet'.	1
	0								- Clic flas	k on "Flash Now" 🎫 to open the h dialog	
	7							Q 🗵	4. Cld	k on "Flash"	
									Applet In	ifo	
									Symbol	Meaning	
										The current active applet.	
										On device startup, this will be	V

Figure 5.9: MEV grabber 4.

Click Flash now.(5)



Figure 5.10: MEV grabber 5.

Flash dialog opens.

Click *Flash*. (6)

ame Grabber	Board ID	Serial	Firmware Version	Driver Version	License	Security code	PCI Express Speed		
mE5 marathon AF2 (0x752)	0	75200042	2.4 (hex: 2.04)	1.3.0 (Win64)	no license	not present	Gen 2 x4		
	🂗 Flash I	Dialog						×	1
				Please restart :	all application	s using the board	d.		
)iagnosis] 1: Acq_Dua	ICLHSx1AreaRAW.dll				Flashed success	ully.	rks:
Performance Ot	n								rathon/LightBridge Board
Firmware History									thon/LightBridge boards contain 8 each contains 1 applet. This allow ifferent applets ready for loading -flashing the board. Partition 0 afe configuration.
1	-								w shows the current flashed and their info, and allows flashing ts, as well as activating them.
	Flash	Can	cel					Close	New Applet(s)
2		is complete							elect Frame Grabber(s).
3	Flashing								and the second se
2 3 4	Flashing						<u>a</u> ×		Click on Q

Figure 5.11: MEV grabber 6.

Now it is successfully flashed.

Close this dialog. (7)

Diagnosis lools li	nfo										
🖉 🗑 🖷 🔑											
e Grabber											
•	Boa	rd ID Seri	ial Fi	irmware Version	Driver Version	License	Security code	PCI Express Speed			
mE5 marathon Ai	F2 (0x752) 0	752	00042 2.4	.4 (hex: 2.04)	1.3.0 (Win64)	no license	not present	Gen 2 x4			
anosis											
ignosis Applets									 Remarks:		
ignosis Applets Board	I) ()								Remarks:	stBridge F	201
egnosis Applets Board Performance	€¥ (5) 0: mE5 m	arathon AF2	! (0×7520004;	12)					Remarks: mE5 Marathon/Ligh	ntBridge E	Boa
gnosis Applets Board Performance Firmware mware History	€¥ (5) 0: mE5 m	arathon AF2	: (0x7520004;	12) Piease	e restart all applica	ations using th	ie board.		Remarks: mE5 Marathon/Ligh mE5 Marathon/LightRidge pertibions; each contains i	tBridge E	3oa tain
agnosis Applets Board Firmware mware History 9	0: mE5 m	arathon AF2	: (0x7520004;	12) Please	e restart all applica	ations using th Applet	ie board.		Remarks: mES Marathon/Ligh mES Marathon/Light hartop 0 of herent apple	tBridge E boards cont Lapplet. This ready for Io.	30a tain salk adin
agnosis Applets Board Performance Firmware mware History 9	0: mE5 m	arathon AF2 Info	(0x7520004)	12) Please	e restart all applic. w	ations using th Applet	ie board,		Remarks: mE5 Marathon/Light mE5 Marathon/Light naving a different applets without re-flacking the to contains safe configuratio	tBridge E boards cont Lapplet. This ready for lo ard. Partition n.	30a tain sali adir 10
agnosis Applets Board Performance Frimware mware History g	0 1	arathon AF2	(0×7520004)	i2) Please _Standard_2X2_Ra	e restart all applica w	ations using th Applet	se board.		Remarks: mE5 Marathon/Lightings partition; each contains is having & offeeni applet contains safe contains is for the window shows the co	tBridge E boards cont applet. This ready for lo ard. Partition n. rrent flashed	Boa tain salk adin n 0
ngnosis Applets Bard Performance Firmware mware History g	0 1	arathon AF2 Info © © @ © @	(0x7520004) CLHS-F2 Acq_Dua	12) Please ,Standard_2x2_Ra alCLH5x1AreaRAV	e restart all applics w	ations using th Applet	ie board.		Remarks: mE5 Marathon/Ligh mE5 Marathon/Ligh settions; each contractions; and participations; and participations; contains safe configuration pre-typeks; and ther info, as mer appleks; and ther info, as mer appleks; as well as ac	tBridge E boards cont applet. This ready for lo. ard. Partition n. rrent flashed nd allows flas tivaling them	Boa tain s alk adin n 0
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Figure 5.12: MEV grabber 7.

Restart all applications using the board.

) 🗐 🗑 📬 🔑									
me Grabber									
rpe	Board II) Serial	Firmware V	ersion Driv	er Version	License	Security code	PCI Express Speed	
mE5 marathon AF2 (0)	(752) 0	75200042	2.4 (hex: 2.0	04) 1.3.0	(Win64)	no license	not present	Gen 2 x4	
Diagnosis									
Diagnosis Applets	Name			DLL version	Result	Error	Message		
Diagnosis Applets Board	Name	ICLHSx1AreaR4	AW.dll	DLL version 3.1	Result SUCCEE	Error	Message		
Diagnosis Applets Board Performance	Name Acq_Dua Acq_Sua	ICLHSx1AreaR4 JIeCLHSx2AreaR	W.dli AW.dli	DLL version 3.1 3.1	Result SUCCEE SKIPPED	Error DED	Message		
Diagnosis Applets Board Performance Firmware History	Name Acq_Dua Acq_Sin BrameGr	ICLHSx1AreaR4 JIeCLHSx2AreaF abberTest.dll	W.dll RAW.dll	DLL version 3.1 3.1 2.1	Result SUCCEE SKIPPED SKIPPED	Error DED	Message		
Diagnosis Applets Board Performance Firmware Firmware Firmware Firmware	Name Acq_Duz Acq_Sinj @ FrameGr	ICLHSx1AreaR/ JIeCLHSx2Areaf abberTest.dll	W.dli AW.dli	DLL version 3.1 3.1 2.1	Result SUCCEE SKIPPED SKIPPED	Error DED	Message		

Figure 5.13: MEV grabber 8.

Select Diagnosis -> Applets.

Now the **Result** is **succeeded**.

5.3 Performance test





To test the board, open *Diagnosis* menu and click *Board* (1) to start the test.

ame Grabber									
ype imicroEnable IV-FU imicroEnable IV-FU imicroEnable IV-FU	LL x4 (0xa44) 2 (0x752)	Board ID 0 1	Serial A44902EC 75200066	Firmware Version 1.53 (hex: 1.35) 2.4 (hex: 2.04)	Driver Version 4.4.0 (Win64) 1.3.0 (Win64)	License Dual-VA no licen	/SMA (0x11) se	Security code not present not present	PCI Express Speed Gen 1 x4 Gen 2 x4
Disgnocis Capplets Dorrd Performance Timware History Log	Test Tempe Pegiste DMA 1 RAM 0 RAM 1 Perfor	ature Test r //w Test Test Test Test Test nance Test		Status Pr Finished Finished Finished Finished Finished Not Scheduled	ogress	Control	Result SUCC SUCC SUCC SUCC	t EEDED EEDED EEDED EEDED EEDED	

Figure 5.15: Test 2.

All tests should *succeed*.



Figure 5.16: Test 3.

Test the performance: click *Performance* (2) to start the test.

It is mandatory that the board *PCIe is highspeed capable*. Otherwise the board is probably not able to transfer the necessary data rate.



Figure 5.17: Test 4.

These two screenshots show achievable data rates for mEIV (3) and mEV (4) boards.

For further information or problems with mainboards please contact PCO *support* section.

6 About Excelitas PCO

PCO, an Excelitas Technologies® Corp. brand, is a leading specialist and Pioneer in Cameras and Optoelectronics with more than 30 years of expert knowledge and experience of developing and manufacturing high-end imaging systems. The company's cutting edge sCMOS and high-speed cameras are used in scientific and industrial research, automotive testing, quality control, metrology and a large variety of other applications all over the world.

The PCO® advanced imaging concept was conceived in the early 1980s by imaging pioneer, Dr. Emil Ott, who was conducting research at the Technical University of Munich for the Chair of Technical Electrophysics. His work there led to the establishment of PCO AG in 1987 with the introduction of the first image-intensified camera followed by the development of its proprietary Advanced Core technologies which greatly surpassed the imaging performance standards of the day.

Today, PCO continues to innovate, offering a wide range of high-performance camera technologies covering scientific, high-speed, intensified and FLIM imaging applications across the scientific research, industrial and automotive sectors.

Acquired by Excelitas Technologies in 2021, PCO represents a world renowned brand of highperformance scientific CMOS, sCMOS, CCD and high-speed cameras that complement Excelitas' expansive range of illumination, optical and sensor technologies and extend the bounds of our end-to-end photonic solutions capabilities.



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An Excelitas Technologies Brand

telephone: fax: postal address:

email:

web:

+ 49 (0) 9441 2005 50
+ 49 (0) 9441 2005 20
Excelitas PCO GmbH
Donaupark 11
93 309 Kelheim, Germany
pco@excelitas.com
www.pco.de
www.excelitas.com

