USER MANUAL

ProDAQ VXI Data Acquisition Systems

ProDAQ 3080 Gigabit Ethernet VXIbus Slot-0 Interface



PUBLICATION NUMBER: 3080-XX-UM-1030



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Bustec Production, Ltd. Bustec House, Shannon Business Park, Shannon, Co. Clare, Ireland Tel: +353 (0) 61 707100, FAX: +353 (0) 61 707106

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Table of Contents

CHAPTE	ER 1 - INTRODUCTION	5
1.1	Overview	5
CHAPTE	R 2 - GETTING STARTED	7
2.1	Unpacking and Inspection	7
2.2	Installing the ProDAQ 3080 Interface	8
2.2.	1 Configuring the Logical Address	8
2.2.2	2 Installing the ProDAQ 3080 into the Mainframe	9
2.3	Connecting the ProDAQ 3080 Interface	9
2.4	Accessing the ProDAQ 3080	11
2.4.	1 Accessing the ProDAQ 3080 using Multicast DNS	
2.4.	2 Discovering the ProDAQ 3080 using VXI-11 Broadcast	13
СНАРТЕ	R 3 - WEB PAGE OPERATION	15
3.1	Instrument Home Page	
3.2	IP Configuration	
3.3	VXIbus Instruments	
3.3.	1 Instrument Information and Access	21
3.3.	2 Resource Manager Output	
3.3.	3 VXI Trigger Control	
3.4	Device Status	23
3.4.	1 Advanced Status	25
3.5	System Log	26
3.6	Device Configuration	26
3.6.	1 General Settings	27
3.6.2	2 Security Settings	27
3.6.	3 VXIbus Settings	
3.6.	4 Interrupt Configuration	
3.6.	5 CLK10 Configuration	
3.6.	b Redout Device	
3.0. 2 7	/ FIIIIIware Update	
3.1	Datasheet and Manual Pages	
CHAPTE	R 4 - REMOTE OPERATION	34
4.1	TCP/IP Instrument Access	
4.2	Mapped Interface Access	34

Table of Figures

Figure 1 - Logical Address Switch Location	8
Figure 2 - Installing the ProDAQ 3080 into a C-Size Mainframe	9
Figure 3 - ProDAQ 3080-AA/BA Ethernet Port(s)	10
Figure 4 - Using Bustec Agent to search for mDNS enabled devices	12
Figure 5 - Using DNSSD Firefox add-on to discover the ProDAQ 3080	12
Figure 6 - Instrument Home Page	15
Figure 7 - IP Configuration Page, secondary Network Interface is disabled	17
Figure 8 - ProDAQ 3080-BA IP Configuration Page, both network interfaces enabled	19
Figure 9 - VXIbus Instruments Page	20
Figure 10 - Instrument Information and Access Page	21
Figure 11 - Instrument Memory I/O	21
Figure 12 - Resource Manager Output Page	22
Figure 13 - VXIbus Trigger Control	23
Figure 14 - Device Status Page	24
Figure 15 - Advanced Status Page	25
Figure 16 - System Log Page	26
Figure 17 - Device Configuration Page	26
Figure 18 - General Configuration Page	27
Figure 19 - Security Settings Page	28
Figure 20 - VXIbus Settings Page	28
Figure 21 - Interrupt Configuration Page	30
Figure 22 - CLK10 Configuration Page	31
Figure 23 – Firmware Update Page	32
Figure 24 - Firmware Upload Progress	33
Figure 25 - VISA Configuration Utility	35
Figure 26 - Add New Interface Dialog	35
Figure 27 - Map Network Interface Dialog	36
Figure 28 - Updated Available Interfaces List	36
Figure 29 – Updated list of configured interfaces	37
Figure 30 - Resource Manager	37
Figure 31 – Bustec VISA Assistant	38

Chapter 1 - Introduction

1.1 Overview

The ProDAQ 3080 Gigabit Ethernet VXIbus Slot-0 Interface provides access to VXIbus instruments through a standard Gigabit LAN interface using the VXI-11 protocol. It is designed to function as a bridge between the established, time-tested and proven base of VXIbus instruments and the IEEE 802 Ethernet, which allows you to build any size of test and measurement system simply by connecting the instruments via standard LAN to your computer.

The ProDAQ 3080 provides up to two standardized Gigabit LAN interfaces with support for the VXI-11 protocol and an embedded WEB interface. It utilizes the new Tundra Tsi148 bridge to support the 2eVME block transfers specified in the revision 3.0 of the VXI standard in addition to all standard transfer modes. This allows for high-speed data transfers while maintaining backward compatibility to existing VXI rev. 1.3, 1.4 and 2.0 instruments.

The ProDAQ 3080 is fully compliant to the VXI*plug&play* standard. Access to the 3080 and the VXIbus instruments is provided through a standard VISA library. This allows for backward compatibility with existing VXI*plug&play* drivers and application software. The VXIbus resource manager is embedded in the 3080 firmware and automatically executed at power-up. The embedded WEB interface allows configuring and controlling the ProDAQ 3080 VXIbus Gigabit LAN Slot-0 interface and provides access to the VXIbus instruments via a standard WEB browser.

Communication with the host processor via the front-panel Gigabit Ethernet port(s) is done via standard Cat 5e Ethernet cable for distances up to 200 meters. Low-cost Gigabit Ethernet switches can be used to increase the maximum distance as well as to connect multiple mainframes to a single host or to integrate multiple mainframes and hosts into a network.

Note:

To achieve maximum performance, connect the ProDAQ 3080 to a host featuring a Gigabit LAN interface. If you are using switches or hubs in your network connection, make sure that they conform to the Gigabit Ethernet standard and are able to operate at that speed.

For synchronization in legacy systems, the ProDAQ 3080 features a front-panel trigger input/output and CLK10 I/O via SMB connectors.

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Chapter 2 - Getting Started

The ProDAQ 3080 Gigabit Ethernet VXIbus Slot-0 Interface is a single slot, C-size VXIbus instrument and can be installed in any slot of a standard C-size VXI mainframe. To be Slot-0 controller for the VXIbus system, it must be installed in the leftmost slot of the VXI mainframe (slot "0"). If it is installed in any other slot of a VXI mainframe, all slot-0 capabilities (MODID, CLK10, etc.) will be automatically turned off.

Attention:

To allow access to instruments in the VXI mainframe, the ProDAQ 3080 MUST be installed in the leftmost slot of the VXI mainframe (slot "0"). Installing it into any other slot will only allow you to access the device itself (e.g. for configuration purposes).

Installing it into any other slot will only allow you to access the device itself (e.g. for configuration purposes). If you do so, please make sure to set up the logical address correctly to avoid any collision with a slot-0 device already present in the mainframe.

Note:

The ProDAQ 3080 Gigabit Ethernet VXIbus Slot-0 Interface does not extend the VXI backplane between mainframes in a multi-mainframe system. This means that devices sharing the local bus must be installed in the same mainframe.

To install the ProDAQ 3080 Gigabit Ethernet VXIbus Slot-0 Interface and the necessary software on your system, use the installation sequence as described in this chapter:

- Step 1: Unpacking and Inspection
- Step 2: Installing the ProDAQ 3080
- Step 3: Connecting the ProDAQ 3080 Interface
- Step 4: Bustec VISA installation (please refer to Bustec VISA Library and Tools User Manual)
- Step 5: Accessing the ProDAQ 3080

2.1 Unpacking and Inspection

All ProDAQ modules are shipped in an antistatic package to prevent any damage from electrostatic discharge (ESD). Proper ESD handling procedures must always be used when packing, unpacking or installing any ProDAQ module, ProDAQ plug-in module or ProDAQ function card:

- Ground yourself via a grounding strap or similar, e.g. by holding to a grounded object.
- Remove the ProDAQ module from its carton, preserving the factory packaging as much as possible.
- Discharge the package by touching it to a grounded object, e.g. a metal part of your VXIbus chassis, before removing the module from the package.

- Inspect the ProDAQ module for any defect or damage. Immediately notify the carrier if any damage is apparent.
- Only remove the module from its antistatic bag if you intend to install it into a VXI mainframe or similar.

When reshipping the module, use the original packing material whenever possible. The original shipping carton and the instrument's plastic foam will provide the necessary support for safe reshipment. If the original anti-static packing material is unavailable, wrap the ProDAQ module in anti-static plastic sheeting and use plastic spray foam to surround and protect the instrument.

2.2 Installing the ProDAQ 3080 Interface

To prevent damage to the ProDAQ module being installed, it is recommended to remove the power from the mainframe or to switch it off before installing.

2.2.1 Configuring the Logical Address

To allow a host to control the VXI devices in the mainframe via the network using the ProDAQ 3080, the ProDAQ 3080 must be installed as the slot-0 controller for the mainframe, i.e. it must be installed in the leftmost slot of the mainframe (slot "0") and must be configured for using logical address 0 (zero).

The logical address switch is located on the back of the module. Figure 1 shows the location of the logical address switch on the ProDAQ 3080. Set each switch to 'Off' for a logical one (1) and to 'On' for a logical zero (0). The picture shows the address switch set to logical address zero (0).



Figure 1 - Logical Address Switch Location

2.2.2 Installing the ProDAQ 3080 into the Mainframe

Insert the module into the mainframe using the guiding rails inside the mainframe as shown in Figure 2. Push the module slowly into the slot until the backplane connectors of the module seat firmly in the corresponding backplane connectors. The top and bottom of the front panel of the module should touch the mounting rails in the mainframe.



Figure 2 - Installing the ProDAQ 3080 into a C-Size Mainframe

Note:

To ensure proper grounding of the module, tighten the front panel mounting screws after installing the module in the mainframe.

2.3 Connecting the ProDAQ 3080 Interface

The ProDAQ 3080 is equipped with one or two standard RJ-45 network connectors, accepting standard Cat 3, Cat 5, Cat 5e and Cat 6 Ethernet cables. However, to run the interface in a network using 1000BASE-T mode, in minimum Cat 5e (better Cat 6) cables are required.

The figure on the next page shows the location of the LAN connector(s) on the ProDAQ 3080-AA and ProDAQ 3080-BA front panel. The connector features two LED indicators showing the speed and the link status of the connection made (see Table 1).



Figure 3 - ProDAQ 3080-AA/BA Ethernet Port(s)

LED	Color	Description
	Off	No link
SPEED	Yellow	10BASE-T/100BASE-T operation
	Green	1000BASE-T operation
AOT	Off	No Activity
ACT	Blinking Green	Activity proportional to bandwidth utilization.

Table 1 - LAN Status Indicators

2.4 Accessing the ProDAQ 3080

In order to get the full access capability to ProDAQ 3080 (mapping to VXI), the Bustec VISA must be installed and used for communication. Other connection methods – to the web interface, or using TCPIP-type VISA resource may be achieved by, respectively, any web browser or VISA library.

By default, the ProDAQ 3080 uses DHCP to configure its network interface. If no DHCP server is found in the network, it will attempt to obtain a network address using AutoIP. The AutoIP addresses are allocated from the reserved range 169.254.1.0 - 169.254.254.255. The ProDAQ 3080 will select a random address from that range. If the address is already in use, another trial is done until there are no conflicts. By using the embedded web interface, the ProDAQ 3080 can be also configured to use a static IP address.

If the IP address is known, the web interface can be opened by typing the address in any web browser:

```
http://<IP ADDRESS>
```

The device can be also accessed (with any VISA) using the following resource string:

TCPIP<n>::<IP ADDRESS>::vxi0::INSTR

2.4.1 Accessing the ProDAQ 3080 using Multicast DNS

ProDAQ 3080 announces, using mDNS that it provides "http" and "vxi-11" interfaces. In order to make use of it, a Multicast DNS service must be running on the host. With mDNS host name it is possible to access the device not knowing the actual IP address.

Multicast DNS services are provided for Windows by Bonjour (available at <u>www.apple.com</u>) and for Linux by Avahi (available at <u>www.avahi.org</u>).

The default mDNS service name for ProDAQ 3080 is:

Bustec Ltd - ProDAQ 3080 - <SERIAL NUMBER>

And the default host name is:

prodaq3080-<SERIAL NUMBER>.local

With the default host name, accessing the web interface is achieved with the following HTTP address:

```
http://prodaq3080-<SERIAL NUMBER>.local
```

And the VISA resource can be accessed with:

TCPIP<n>::prodaq3080-<SERIAL NUMBER>.local::vxi0::INSTR

The host name may be changed by the user, so having an automatic search for mDNS enabled devices is very useful. The user doesn't need to know neither the IP address nor the host name of the device. If Bonjour (Windows) or Avahi (Linux) is running on the host, the Bustec Agent tool makes use of it. It scans for the available devices, lists them and allows opening their web interfaces.

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	VISA 64 bit Conflict Manager	Law and the second second
	Bustec Resource Manager	and the second
14	Bustec VISA Assistant	No. A Contraction of the
1	Bustec VISA Monitor	And the second s
	LXI Devices 🔸	📲 Bustec Ltd - ProDAQ 3080 - 00103393
3	Help	Bustec Ltd - ProDAQ 6100 - 10487864
×	Run Resource Manager automatically on Hot Plug event	Bustec Ltd - ProDAQ 6100 - 10487839
	About	Sector States
	Quit	

Figure 4 - Using Bustec Agent to search for mDNS enabled devices

There are other tools that give similar functionality as well. For example: DNSSD add-on for Firefox, available at <u>addons.mozilla.org</u>.

Prodeq308	80-00103393.local.		tîr ≠ C 🛃 - Grogie	2 👘 🛙
Bustec Ltd - ProDAQ 610 ProDAQ 610 ProDAQ 610	es ProCVVQ 2000 - 00103393 0 - 109 - 10409100 0 - 100 - 10409100 Browser Configuration Options	- Diagnostic Information		
/XIbus instruments	Instrument Model	ProDAD 3080-AA (Othurs Globabili AN Stat-0 Interface)		1
levice Status	Manufacturer	Ruster Ltd		
system Log	Barial Number	00103393		
wvice Configuration	Host Name	ProDA03080-00103393 local		
latasheet	mDNS Service Name	Bustec Ltd - ProDAQ 3080 - 00103383		
lanuai	MAC Address	00.01 af 18.18 af		
	TCP/IP.Address	192.168.2.80		
	Current Time	Fri: 15 Mar 2013 09:50:25 UTC		
	Time Source	SYSTEM		
	Instrument Address String	TCPIP: 192 168 2 80 INSTR		
	User Description	Bustec Ltd - ProDAQ 3080 - 00103393 - VXibus Gigabit-LAN S	lot-0 interface	
	Asset Number	<not assigned=""></not>		
	Ermware Revision	12		

Figure 5 - Using DNSSD Firefox add-on to discover the ProDAQ 3080

2.4.2 Discovering the ProDAQ 3080 using VXI-11 Broadcast

The Bustec VISA Configuration Utility can be used to discover ProDAQ 3080 modules using the VXI-11 protocol. To discover ProDAQ 3080, the device type VXI with device number 0 must fit within the search criterion (it does by default). The discovered ProDAQ 3080s are added to the Network Instruments list as VISA resources:

TCPIP<n>::<IP ADDRESS>::vxi0::INSTR

For the detailed description of the procedure please refer to Bustec VISA Library and Tools User Manual.

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Chapter 3 - WEB Page Operation

The ProDAQ 3080 features an embedded WEB server, which allows you to configure and operate the ProDAQ 3080 by using a standard WEB browser from any host computer in your network.

3.1 Instrument Home Page

The instrument home page shows general information about the device like model number, manufacturer, serial number, and revisions. For the network interface respectively both network interfaces in case of the ProDAQ 3080-BA, the IP address(es), MAC adress(es) and instrument address string(s) are shown. Please note that the instrument address string is not the one used in all operation modes, see Chapter 4 - Remote Operation.

oustec		VXibus Gigabit-LAN Slot-0 Interface		= A.
ome	Instrument Home Pa	ge		
Configuration		73) 		
Xibus instrumente	Instrument Nodel	ProDAQ 3080-8A (V33bus Grgab#LAN Slot-0 interface)		
evice Status	Manufacturer	Bustec Ltd.		
ystem Log	Serial Number	00103393		2
evice Configuration	HostName	ProDA03080-00103393.iocal		
stational	mDTHS Service heame	Bustec Ltd - PreD4Q 3060 - 00103393		1
anual	MAC Address	00-01-XF-10-10-DF (Network Interface #1) 00-01-08-00-14-F3 (Network Interface #2)		
	TOP/IP Address	192 168 2 158 102 168 2 157		
	Current Time	Tue, 08 Oct 2013 09:43:55 UTC		
	Time Source	SYSTEM		
	Instrument Address String	TCPIF: 192 168 2 156 INSTR TCPIF: 192 168 2 157 INSTR		
	User Description	Bustec Ltd - ProD4Q 3080 - 00103393 - VXbus GigisbHLAN Stot-0 interf	ace	
	Asset Number	<not assigned=""></not>		
	Finmware Revision	12.1		

Figure 6 - Instrument Home Page

From here you can navigate to the different categories and pages by using the menu on the left side.

For security reasons, all pages except of the instruments home page are protected by username and password, which can be configured on the "Device Configuration" -> "Security Settings" page. Upon delivery, the username and is set to "admin" and the password to "1234".

3.2 **IP** Configuration

The IP Configuration Page shows the current settings and allows you to change the configuration for the ProDAQ 3080's LAN interface(s). Network Interface #1 is present on both versions (-AA and -BA) of the ProDAQ 3080 and is always enabled. On the ProDAQ 3080-AA the secondary interface is not available and therefore permanently switched off in the IP Configuration Page. On the ProDAQ 3080-BA, the secondary Interface may be switched on and off.

* 🛃 🎤 🕫 192	168.2158/lanconlig.html	ी र C 🚺 - Gaya 🖉 🐥 🏚
ustec 27		ProDAQ 3080 VXIbus Gigabit-LAN Slot-0 Interface
ome		
Configuration	IP Configuration	
Obus Instruments	Hootname	ProDA029080-00103393
Nico Status	User description.	Bustec Ltd - ProDAQ 3080 - 00103393 - Witsus Gigabit LAN Stat 0 Interface
stem Log	and a second second	
wce Custiguration	Network Interface #1	
tasheri	MAC Address	00-01-4F-10-18-DF
musi	Current IP Address	192.168.2.158
	Current Subnet Mask	255 255 255 0
	Current Datault Gateway	192.198.2.1
	TCFIF Mode	ØOHCP assigned → ØAuto IP → ØStatic IP
	IP Address	192 108 2 158
	Subnet Maek	255 255 255 0
	Default Gateway	192.168.2.1
	ито	3000
	Network Interface #2	
	MAG Address	00-01-09-00-14-#3
		192 168 2 220
	Current Units Server(s)	192 188.2.1
		EHCP
	ONS Server(s)	1977.1958.2.220
	Back	mDNS Senice Name Rest form Save and restant network

Figure 7 - IP Configuration Page, secondary Network Interface is disabled

The displayed configuration and user-editable settings are the following:

Hostname	User defined hostname for the device (without domain). Clear this value to revert to factory default.
	Note: Multicast DNS domain is always: ".local". Dynamic DNS domain depends on the network configuration.
User Description	User defined description of the device – it is displayed on the Home Page along with user defined Asset Number (see Device Configuration).

	Clear this value to revert to factory default.
MAC address	Shows MAC address of the Network Interface.
Current IP configuration	Displays currently assigned: IP Address and Subnet Mask – for each of two Network Interfaces, Default Gateway – only for the primary interface and DNS servers – common.
TCP/IP mode	Specifies whether the device shall use a DHCP server in the network, or AutoIP protocol to automatically obtain the IP configuration, or maybe the static IP configuration defined in the form below.
	More than one option may be selected. The priority is as follows: DHCP \rightarrow AutoIP \rightarrow Static. For example, if DHCP and Static are selected and DHCP fails, the Static configuration is set.
	Note: Only one of the Network Interfaces may use AutoIP option. If none of them are configured to use DHCP, at least one DNS server IP address must be defined by the user.
IP Address	If "Static IP" was selected as the TCP/IP mode, this field allows assignment of a static IP address to the ProDAQ 3080 LAN interface(s).
Subnet mask	If "Static IP" was selected as the TCP/IP mode, this field allows assignment of a static subnet mask address to the ProDAQ 3080s LAN interface(s).
Default Gateway	If "Static IP" was selected as the TCP/IP mode, this field allows assignment of a static default gateway for the routing of IP packets.
	Note: Due to common routing rules it is possible to define one Default Gateway – here only for the primary Network Interface.
DNS Servers	If none of the Network Interfaces are configured to use DHCP, these two fields allow you to specify the DNS server the ProDAQ 3080 will use for name resolving. Otherwise it is possible to select whether the DNS servers' IP addresses shall be acquired automatically (DHCP) or user-defined (Static).
ΜΤυ	Maximum Transmission Unit (MTU) – maximum size (in bytes) of an IP packet that can be transmitted without fragmentation (including IP headers, but excluding headers from lower levels in the protocol stack). Each Network Interface has own MTU setting.
	The default value for a typical network is 1500 bytes. It can be defined as high as 9000 bytes (jumbo frames). For correct interoperation, the whole network must have the same MTU. To achieve the maximum performance, it is recommended to configure the network to work with a MTU settings as high as possible.

mDNS Service Name

User defined name of mDNS services that are advertised by the ProDAQ 3080.

Clear this value to revert to factory default.

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na Contigeration	Interioris miterface #1			
Internet	MAC ARRIVES	88 81-89-18-18-19-19		
	Carnel IP Advisor	182 Heb 2 160		-
	Convert Support Mask	285 281 299 0		
1	Current Default Galeroni	182-182-21		
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	Data of Man	258.255.295.8		
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	BALL Automas	20-21-26-20-14/2		
	Connecti? Address	192-198.1.15F		
	Carriert Sugnet singler	255,285,285,0		
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	flact		INCIAD General Asams Report for	to Save and restart network

Figure 8 - ProDAQ 3080-BA IP Configuration Page, both network interfaces enabled.

3.3 VXIbus Instruments

The VXIbus Instruments Configuration page shows a table with the VXIbus instruments identified by the embedded resource manager on start-up.



Figure 9 - VXIbus Instruments Page

By pressing the "More..." buttons to the right of an instruments entry, a separate page with additional information about the particular device is shown (see 3.3.1), where you can perform basic I/O operations in a way similar to the VISA assistant.

The "Show Resource Manager Output" button displays the log file written by the embedded resource manager on start-up.

The "VXI Trigger Control" button lets you access a page where you can set the routing of the VXIbus backplane trigger lines and the ProDAQ 3080 front panel trigger I/Os.

3.3.1 Instrument Information and Access

The "Instrument Information and Access" page shows detailed information about the VXIbus instrument as discovered by the embedded resource manager.

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bustec		ProDAQ 3080 VXIbus Gigabit-LAN Slot-0 Interface		÷X.
Home IP Configuration V20bas Instruments	VXIbus Instrumer	nts and Access		2
Device Statun	Logical Address	0		1
System Log	Sint	0		
Device Configuration	Wanufacturer (D	Bustec (0xe70)		
Datasheet	Nodel Name	ProDAD 3080 (0x008)		
Hanyal	Device Class	Register-based		
	Address Space	A16		
	Back	6	Memory V	Basic #0

Figure 10 - Instrument Information and Access Page

Depending on the type of instrument you can perform basic memory or message based access operations on the device by selecting the "Memory I/O" or "Basic I/O" buttons at the bottom of the page.

Xpeborq 🖲 🔛 +	00-00100399	involtant) $dr = C \left[\mathbf{R} \right] \cdot despte $	P 🛉 1
bustec		ProDAQ 3080 VXIbus Gigabit-LAN Slot-0 Interface	
Home IP Configuration V20bas Instruments	VXIbus Instrumer	nts Memory l/O	
Device Status		VXBus lestrameet at Logical Address: 0 (Manufacturer: Bustec, Model Name: ProDAQ 36	0080
System Log	Address Space	VI_A16_SPACE +	
Dence Computation	Address Offset	0x0000 - +	
Manual	Data Width	VI_WIDTH_96 +	
	Write Data	0x0000 - + + + HEX ODEC OBN	
	Read Data	OxEE20 HEK ODEC OBN	
	Returned Status	0x00000000: The operation completed successfully	
	Back	Read	ite _

Figure 11 - Instrument Memory I/O

3.3.2 Resource Manager Output

The "Resource Manager Output" page lets you review the output of the embedded VXIbus resource manager.

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oustec	VXID	ProDAQ us Gigabit-LAN	3080 N Slot-0 Inte	rface		₩X
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Configuration	VXIbus Instruments					
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dasheet	Processo of Terrary					
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	5100 LA Device 5 0 Register 7 3 Register 4 7 Message	Address Bese Al6 Only Al6/A32 0x200 Al6 Only	515e 00000 0x10000000			
	Writing Output File: /tap/bureaman.out					
	0 0 901	0 INSTR	8	ж		
	4 7 9XI	O INSTR #	8	×		
	VXI Device Table					
	Configured Interface VXID Slot Macufecturer (1d) 0 Bustec (e70) 7 Bustec (e70) 4 Bacal Insta (ffb)	Hodel (Id) ProDAQ 3080 (008) ProDAQ 3180 (066) Unknown Card (243)	Device Register Based Register Based Heseage Based	Status Bendy Bandy Fendy		
	Memory Map Slos - Address Space	Base Size				
	VXID 0 A18 Cnly VXID 7 A16/A32 VXID 4 A16 Cnly	0x2000000 0x100	00000			
	Back					

Figure 12 - Resource Manager Output Page

3.3.3 VXI Trigger Control

The "VXI Trigger Control" page allows you to route the VXIbus trigger lines from/to the front panel trigger I/Os on the ProDAQ 3080.

By choosing the "Front Panel Trigger In" selection for any or all of the VXIbus TTL and ECL trigger lines or the Front Panel Trigger Output line, any trigger received on the front panel trigger input line of the ProDAQ 3080 will be routed to any or all of the chosen lines.

While "Unrouted" and "Front Panel Trigger In" are the only possible sources for trigger events for the VXIbus TTL and ECL Trigger lines, the front panel trigger output line can also receive trigger events from the VXIbus TTL and ECL trigger lines.

In addition to routing the trigger lines, each of the trigger lines can be asserted, deasserted or a pulse can be generated by using the buttons "Assert", "Deassert" or "Pulse" to the right of each trigger line source selection.

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2		Pro	DAQ 3080) O Interfoce		Z
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ome	VXI Trigger Contr	ol				
Configuration	in ingger conta					
Albus Instruments	Destination	Source	Status		1010 - OH	
estern Log	Backplane TTL0	Unrouted	· Not asserted	Asset Desset	Pulse	
evice Configuration	Backplane TTL1	Unrouted	 Not asserted 	Assert Deassert	Puloo	
dasheet	Backplane TTL2	Unrouted	· Not asserted	Assert Deassert	Pulse	
anual	Backplane TTL3	Unrouted	· Not asserted	Asset Desset	Pulse	
	Backplane TTL4	Unrouted	· Not asserted	Asset Deasset	Pulse	
	Backplane TTL5	Unrouted	· Not asserted	Assert Deassert	Pulse	
	Backplane TTL6	Unrouted	· Not asserted	Assert Deassert	Puise	
	Backplane TTL7	Unrouted	- Not asserted	Assert Deassert	Pulse	
	Backplane ECL0	Unrouted	· Not asserted	Assert Deassert	Puise	-
	Backplane ECL1	Unrouted	· Not asserted	Assert Dessent	Pulse	
	Front Panel Trigger In		+ Not asserted	Assert Desset	Pulse	_
	Front Panel Trigger Out	Unrouted	· Not asperted	Assert Dessert	Pulse	
	(disct.)	1	_		[thomas all biomass]	Datast
	(Biden				Contrast an any determined	THE REAL

Figure 13 - VXIbus Trigger Control

3.4 Device Status

The "Device Status" page shows the overall status of the ProDAQ 3080 and its network connection. For a more detailed status, select the "Show advanced status" button at the bottom.

Bustec Ltd ProDAQ 3060-BA	- 001/0339 +			1		
bustec		ProDAQ 3080 VXIbus Gigabit-LAN Slot-0 Interface	17 + C 1 61 - may			
Home IP Configuration	Device Status					
VXbus instruments	Status	107				
Device Status	System Status	Ready			-	
System Log	Network Interface #1	1000Mb/s - Full Duplex			-23	
Device Configuration	Network Interface #2	1000Mo/a - Full Duplex				
Datasheet	Back		Retest	Show advanced statu	18	
tionust						
				Þ		
opynghi ili 1997-2013 Busies Lisi					e burtec o	2001

Figure 14 - Device Status Page

3.4.1 Advanced Status

The "Advanced Status" page allows you to view the output of several tools and contents of configuration files available on the ProDAQ 3080. To switch between the different outputs/files, just select the tool/file with the combo box at the bottom. The "Refresh" button allows updating the status.

Buster, Ltd ProDAQ 3080-B-	4 - 0010330 +		Þ.			-010	9 💽
* * 🛃 🖲 102.168.2	158/development	Olimi	🟠 🕆 C 🛛 🚺 + Graye		24	E #	
12 12 14 bustec 19 27		ProDAQ 3080 VXIbus Gigabit-LAN Slot-0 Interface		111	7	bus	_
P Configuration	Advan	ced Status					
VXbus instruments	ifconfig						
System Log Device Configuration Datasheet Manual	eth0	<pre>Link encap:fbternes: HWadds 00:01:AF:18:18:19 Inte add1:82.100.2.150 Hower:180.100.0 Metric:1 HE HDADCART ANNIHS MTLTICAT MTU:9000 Metric:1 HE packets:1801 errors:0 dopped:0 overruna:0 carrier:0 oplitican:0 tayguetes:1000 BK hypes:16566(181.6 Hb) TX hytes:167415(163.4 Hb) Base addres:0000 Link encap:fbternet HWadds 00:01106:00:14:53 inst addr:12.100.3.157 Beast:100.100.0 Metric:1 HF packets:187 errors:0 dopped:0 overruna:0 frame:0 TK packets:187 errors:0 dopped:0 overruna:0 frame:0 SK hypes:187447 (133.5 Hb) TK hytes:125445 (126.3 Hb) Base addres:0xffo0 Memory:dfe0000-dff00000</pre>					
	Back	Select the information set to be d	loplayed frontig		Rete	sh	
Copyright & 1997-2013 Ountes Las						ve turteo o	-

Figure 15 - Advanced Status Page

The following tools and configuration files are available:

ifconfig	Shows the output of the "ifconfig" utility with detailed information on the network interface status. For detailed information, please refer to the Linux manual page for "ifconfig".
route	Shows the routing table as seen by the embedded Linux kernel on the ProDAQ 3080.
resolv.conf	Displays the contents of the <i>resolv.conf</i> file. The resolv.conf file is maintained by networking scripts and shows the current nameserver configuration in use by the ProDAQ 3080 kernel.
hosts	Displays the contents of the <i>hosts</i> file. The <i>hosts</i> file contains the known host aliases.
device.conf	The <i>device.conf</i> file holds the static settings configured via the "IP Setup" page.
device and firmware revision	Shows the revisions of the different parts of the system.

3.5 System Log

The "System Log" page shows the output of the kernel logging facility.

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a Ru G biogada	80-0010306310C4F. And upon	t . C . N sobe	P 11	
bustec 1	ProDAQ 3080 VXIbus Gigabit-LAN Slot-0 Interface		¥X.	
Home	Sustan Las			
IP Configuration	system Log			
VXDes instruments	1 on stated at Tue 12 Mar 2012 12:50:201 (TC			
Device Status	All timestamps are in UTC.			
System Log	Mar 12 12:52:29 (none) lightpd[796) (mod_fastcgi c.2462) unexpected end-of-file (perhaps the fastcgi process	died): pid: 0 socket: unix:/kian/run/lightpd	dogi.socket	
Device Configuration	Mar 12 12:52:29 (none) lightpd(796) (mod_fastcgl.c.3254) response not received, request sent 2019 on socket closing connection	t unic/varinumlighttpdftcgi.socket for /tan	config html ,	
Datasheet	Mar 12 12:52:29 (none) BUFCO: inflatign access to the device.			
Manual	Mar 12 12:522 (none) BUFCS: exering social product. Mar 12 12:522 (none) BUFCS: exering social Mar 12 12:522 (none) BUFCS: exering social Mar 12 12:522 (none) BUFCS: initiation FCGI request. Mar 12 12:52 (none) divisiont DHCPRELEASE on ethols 192 168 2.1 port 67 Mar 12 12:52 (none) divisiont DHCPRELEASE on ethols 192 168 2.1 port 67 Mar 12 12:52 (none) divisiont DHCPRELEASE on ethols 192 168 2.1 port 67 Mar 12 12:52 (none) divisiont DHCPRELEASE on ethols 192 168 2.1 port 67 Mar 12 12:52 (none) divisiont DHCPRELEASE on ethols 192 168 2.1 port 67 Mar 12 12:52 (none) divisiont DHCPRELEASE on ethols 192 168 2.1 port 67 Mar 12 12:52 (none) divisiont DHCPRELEASE on ethols 192 168 2.1 port 67 Mar 12 12:52 (none) divisiont DHCPRELEASE on ethols 192 168 2.1 port 67 Mar 12 12:53 (none) Idplication (None) None (None) Idplication (None) None Mar 12 12:53 (none) Idplication (None) (None) Idplication (None)	4600 bytes. We waited 360 seconds. If	this a	

Figure 16 - System Log Page

3.6 Device Configuration

The device configuration is split up into several sub-items.

Bustec Ltd ProDAQ 3080-AA	- 0010339 +			
WEpebong 🕑 🔛 🕈	0-00103393 Jocal./ deve pidby.html		S2 ≠ C S1 + Google	P # 10
bustec		ProDAQ 3080 Xibus Gigabit-LAN Slot-0 Inter	face	
Home IP Configuration	Device Configuratio	n		
Volus instruments	General Bettings	Change		
System Log	Security Settings	Change	D.	
Device Configuration	Villaus Bettings	Change		
Datasheet	Interrupt Configuration	Change		
Manual	CLK10 Configuration	Change		
		Rebot Device		
		Firmware update		
	Back			
	1			



Click on one of the buttons to the right of the different sections to access it. Each sub-item lets you configure a part of the ProDAQ 3080.

In addition the page contains two buttons to either reboot the device or to update the firmware.

3.6.1 General Settings

This page allows you to change the system time and assign an asset number to the device, which will be shown on the instrument home page.

Here a				Lizz A. Gr
Bustec Ltd ProDAQ 3080-AA	4 - 0010339 + 00-00103393 Jocat. 'Ileversiting_gen.html		☆ = 0 N + Souple	P 👘
bustec		ProDAQ 3080 Kibus Gigabit-LAN Slot-0 Interface	1	X
Home 8 ⁹ Configuration VX0bus instruments	Device Configuration	n		
Device Status	Set Waster PTP Date/Time	12 • Mar • 2013 • 13 • 27 • 13 • UTC •	3	
Device Configuration	Asset Number			
Datasheet	Back		Resetform	Bave values
Manual				
		Þ		
spyright @ 1997-2010 Busine Ltd				www.hudac.com

Figure 18 - General Configuration Page

3.6.2 Security Settings

On this page you can change the password that is used to protect the pages of the ProDAQ 3080. Please type in your old password, the new one and confirm it by re-typing.

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Home IP Configuration VXIbus Instruments	Device Configuratio Security Settings	n				
Device Station	User Name	admin			1	
Device Configuration	Curtert Password	0				
Datasheet	New Password					
Manual	Re-type New Password					
	Back		De		Change Password	
	41					

Figure 19 - Security Settings Page

3.6.3 VXIbus Settings

The VXIbus Settings page allows you to configure how the ProDAQ 3080 accesses the VXIbus.

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bustec		ProDAQ 3080 Kibus Gigabit-LAN Slot-0 Interface		
Home IP Configuration V30bas instruments	Device Configuration	n		-
Device Status	Bus Timeout	1024 microseconds 🖌		1
System Log	Bus Arbiter Mode	Priority +		
Datasheet	Bus Arbiter Timeout	0 (dstabled) -		
Manual	Bus Requester Mode	Fair -		
Participant (Bus Requester Level	3 •		
	Bus Reg Release Mode	Release on request 🐱		
	Access Counter "ON"	512 Bytes +		
	Access Counter "OFF"	0 (disabled) +		
	(THEORY)		Resat Form	Same Value

Figure 20 - VXIbus Settings Page

Bus Timeout

The time the on-board timer needs to expire once a VXIbus access by the 3080 is started. If it expires, a VXIbus slave did not respond correctly and a bus error is generated.

Possible values are: 16 µsec, 32 µsec, 64 µsec, 128

	μsec, 256 μsec, 512 μsec and 1024 μsec
Bus Arbiter Mode	Selects the bus arbiter mode. Possible values are: "Priority" or "Round Robin". (Remark: The arbiter is only enabled if the module is placed in the leftmost slot of a VXI mainframe, slot "0").
Bus Arbiter Timeout	Specifies the timeout for the arbiter. Possible values are: Disabled, 16 $\mu sec,256\mu sec.$
Bus Requester Mode	Sets the request mode of the ProDAQ 3080, "Fair" or "Demand".
Bus Requester Level	Selects the request level the module is using when accessing the VXIbus. Possible values are 3 to 0, with 3 as the highest priority and 0 as the lowest.
Bus Req. Release Mode	Selects the release mode: "RWD" (release when done) or "ROR" (release on request).
Access Counter "On"	Sets the number of bytes to transfer before a bus access can be interrupted. Possible values are 0 (disabled), 256 bytes, 1024 bytes, 2048 bytes, 4096 bytes, 8192 bytes and 16384 bytes.
Access Counter "Off"	Sets the time the accesses are paused before a new block is started. Possible values are: 0 (disabled), 2 μ s, 4 μ s, 8 μ s, 16 μ s, 32 μ s, 64 μ s, 128 μ s, 256 μ s, 512 μ s and 1024 μ s.

Note:

Please note that any changes will be applied only at the next reboot of the device.

3.6.4 Interrupt Configuration

The Interrupt Configuration page allows configuring the usage of the VXIbus interrupt lines in the allocation mechanism of the VXI resource manager.

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tome		Non-		
P Configuration	Device Configur	ation		
V20bus Instruments	Interrupt Configurat	ion		
Device Station				
System Log	IRQ Love(1	Auto 👻		
Device Configuration	IRQ Level 2	Auto 🔹		
Datasheet	(RQ Level 3	Auto -		
tanual	IRQ Lavel 4	Auto 👻		
	IRQ Level 5	Auto +		
	IRQ Level 6	Auto 🗸		
	IRQ Level 7	Auto 🔸		
	Back	N	ResetForm	Save Values

Figure 21 - Interrupt Configuration Page

For each of the VXIbus interrupt lines (Level 1 to Level 7) one of two settings for the assignment can be chosen:

- Auto This setting will allow the resource manager to use the interrupt line for this level in his allocation mechanism.
- None This setting will prevent the resource manage to use the interrupt line for this level in his allocation mechanism. This setting must be used if a instrument in the system does not allow the dynamic allocation of interrupt lines and wants to use one or more lines permanently allocated.

3.6.5 CLK10 Configuration

This page allows you to enable or disable the CLK10 output on the ProDAQ 3080 front panel.

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bustec		ProDAQ 3080 /XIbus Gigabit-LAN Slot-0 Interface		XX
Home IP Configuration VXIbus Instruments	Device Configuration	ion		in the second se
Dennice Statum Sanderm Log	Front Panel CLK10	Disabled •		
Device Configuration Datasheet	Back		Read Form	Save Values

Figure 22 - CLK10 Configuration Page

3.6.6 Reboot Device

If for any reason you need to reboot the ProDAQ 3080 remotely, you can use the button "Reboot Device" in the "Device Configuration" page. To avoid accidental usage of this feature, selecting the button will cause a verification dialog to pop-up before the actual reboot starts.

Note:

Please allow sufficient time for the device to reboot before trying to access it again. Please note as well that depending on your IP and network configuration the device may use a different IP address after reboot (e.g. DHCP).

3.6.7 Firmware Update

To update the firmware on the ProDAQ 3080, use the "Update Firmware" button on the "Device Configuration" page.

inder 115 - ProDACI 3380-A	4-0000139. +				191.9	2
Epebora 🕒 🛐 🚸	000-10486110.Jocal./lievepathg_ottatnal		the C R - Google	م	+	83
bustec 27	VXIbus G	ProDAQ 3080 Igabit-LAN Slot-0 Interface		# 0	bus	
iome Configuration	Device Configuration					23
Xibus instruments	Firmware Update					
exice Station	File		Browne		1	
ystem Log evice Configuration	Back		Contract of	Update Firmwat	•	
lasheet				, sense for a second second second	Here's	
anaat						
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Figure 23 – Firmware Update Page

First save the file containing the new image on your local host. Press the "Browse..." to open the file upload dialog, which allows you to browse through your file system and select the file to upload. Once the correct file is selected, press the "Update Firmware" button. The upload progress and the programming progress will be displayed by a progress bar below the file selection control.

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Bustec Ltd ProDAQ 3080-A	A - 9010339 +			
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Home				
IP Configuration	Device Configuration			
V20bus instruments	Firmware Update			
Device Statten	Fin			1
System Log	rae.	The second secon	EROWDE.	
Device Configuration	Status	Updating Kernel (erasing)		
Datasheet	Progress		15.96	
Manual	Back			Update Filmware
		4		
Capyright & 1997-2013 Busines Lt				wro.tastec.com
-				

Figure 24 - Firmware Upload Progress

During the upload and programming, do not navigate away from the page by using the browser controls. Any interruption of the update process might render the ProDAQ 3080 unusable.

WARNING

Depending on your connection speed uploading and programming a new firmware image may take several minutes. To safely complete the process, do not navigate away from the page and do not interrupt the connection to the ProDAQ 3080 or power-cycle the mainframe.

3.7 Datasheet and Manual Pages

The "Datasheet" and "Manual" pages allow you to view the ProDAQ 3080 datasheet and user manual.

Chapter 4 - Remote Operation

The ProDAQ 3080 Gigabit LAN Slot-0 Interface features a VXI-11 RPC server, which allows the access from remote hosts via the VISA library. This access can be done in two ways, either by accessing the VXIbus instruments separately as TCP/IP instruments or by mapping the ProDAQ 3080 into the remote VISA configuration as a standard VXIbus interface.

4.1 TCP/IP Instrument Access

To access the VXIbus instruments installed in the same mainframe as the ProDAQ 3080 interface, you will need to use resource strings in the format

TCPIP[board]::<host address>::<interface>,<logical address>[::INSTR]

where [board] is the optional index of the LAN interface devices (as default, device 0 is used); <host address> specifies the host name or IP number of the ProDAQ 3080 interface; <interface> specifies which interface on the ProDAQ 3080 to use (only "vxi0" is supported) and <logical address> specifies the logical address of the VXIbus instruments to access. The specification "::INSTR" is optional.

Example: If the ProDAQ 3080 is configured to use IP address 192.168.2.80 and is installed in the same mainframe as a VXIbus device configured for using logical address 2, access to this device can be gained by using the open statement

Hence, as the VXI-11 standard allows only for read/write RPC messages, only message based VXIbus instruments can be operated in this way.

4.2 Mapped Interface Access

To gain access to all VXIbus instruments via the ProDAQ 3080 Gigabit LAN Slot-0 Interface, it is necessary to map the ProDAQ 3080 as a standard VXIbus interface onto the host system.

To do so, select the "Bustec VISA Configuration Utility" in the Bustec VISA program group created during the installation of the VISA library ("Start" \rightarrow "Programs" \rightarrow "Bustec VISA"). Alternatively you can use a link in Bustec Agent. This will start the configuration tool for the VISA library and attached hardware interfaces.

📑 Bustec VISA Configuratio	on Utility	
Bustec	istec VISA Configuration	utility
Adapters Interfaces	Network Instruments	Add Interface
VXI2	ProDAQ 3030 Ser.No. 10488548	Remove Interface Configure Interface Refresh List Resource Manager

Figure 25 - VISA Configuration Utility

To add a new interface, select "Add Interfaces". A new dialog "Add New Interface" is shown with a list of all devices found in the system. The already configured are disabled. Each interface is listed with its type and with a description containing the serial number of the device.

To map a remote interface, select the "Map Network Interface" button at the bottom.

Add New Interf	ace 🥂 💦 🔀
VISA Name 🛛	Interface Description
VXI2	ProDAQ 3030 Ser.No. 10488548
nterface number:	0 → Map Network Interface Add all Add selected Cancel

Figure 26 - Add New Interface Dialog

In the "Map Network Interface" dialog you can specify the network address of the remote interface and the local interface on the remote server to use. In case ProDAQ 3080 only "vxi0" is supported.

The TCPIP interface number is a virtual value. It allows differentiation of TCPIP interfaces in case of conflict management when there are multiple VISAs installed in the system.

Map Network Interface	? <mark>×</mark>
TCPIP interface number: 5 IP address or host name: 192.168.2.80 Type: vxi Number: 0	
Descriptor TCPIP5:: 192. 168. 2.80:: vxi0	Cancel

Figure 27 - Map Network Interface Dialog

Click "Ok" to add the network interface. The procedure can be repeated to add more ProDAQ 3080 network interfaces for mapping.

Once the network interfaces are added, they can be configured with VXI interface numbers. The VXI interface numbers are assigned automatically from the pool of not yet used values. In order to change them, just select an interface and modify the value using the spin box control in the bottom.

📑 Add New Interfa	ce	? 💌
VISA Name 🖉	Interface Description	
VXII	TCPIP5::192.168.2.80::vxi0	
VXI2	ProDAQ 3030 Ser.No. 10488548	ß
Interface number: (1 🖨 Map Network Interface Add all Add selected	Cancel

Figure 28 - Updated Available Interfaces List

Finally click "Add all" or "Add selected". The list in the main dialog will be updated with the newly added interfaces.



Figure 29 – Updated list of configured interfaces

As the remote interface is now mapped as a standard VXIbus interface onto the computer, the resource manager need to run to retrieve the instrument configuration from the remote host. To run the resource manager, select "Bustec VXIbus Resource Manager" from the Bustec VISA program group in the start menu ("Start" \rightarrow "Programs" \rightarrow "Bustec VISA") or use the link in Bustec Agent.

•	VXIbus Reso	ource Manager		L.	}		- • ×
	Resource Man	ager Finished					
				100%			
	Bustec VXI	[Resource Ma	anager ver.	4.1.0.6581			
	Interface	VXI2 (Mapped	i to TCPIP5:	:192.168.2.	80::vxi0,0)		
	Slot	LA	Device	Address	Base	Size	
	0	0	Register	A16 Only			
	7	3	Register	A16/A32	0x20000000	0x10000000	
	Writing Ou C:\Program	ntput File: mData\Bustec\	\buvisa\bure	sman.out			
						Close	<< Details

Figure 30 - Resource Manager

Note

The VISA library is a shared library that initializes itself when it is first loaded by an application. Applications started while the VISA library is already loaded just share this configuration. Only when all applications using the VISA library are stopped, it will be unloaded by the system. Therefore all applications using the VISA library must be closed before running the resource manager or using the VISA configuration utility. Take special care while using integrated development environments, they will keep the VISA library loaded even when the application developed in them was stopped.

When the Resource Manager retrieves the configuration from the ProDAQ 3080 host, it's possible to access the remote VXI resources using VXI rather than TCPIP interface.

The Bustec VISA Assistant tool can be used to easily access the configured interfaces without programming.

Bustec VISA Assistant Bustec VISA Assistant Bustec VISA Assista	nnt plug&play
Detected resources	Resource Information Manufacturer ID: 0xe70 (3696) Model code: 0xc6c (3180)
	Refresh About Close

Figure 31 – Bustec VISA Assistant

For more information on the tools coming with the Bustec VISA and application programming using the VISA library please refer to Bustec VISA Library and Tools User Manual.

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27.6	2 4	13.69	
27.0	1	12 14	
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615	21.45	23.55	45.62
0 19 19	25.51	56.37 54.37	34.55
45.83	74,36	38.55	78:54
$O_{\rm HB}$	1616	36.13	34,53
76.14	15:51	36.17	34.58
45.83	74.36	3.6	78.54
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Bustec Ltd. Bustec House, Shannon Business Park Shannon, Co. Clare, Ireland Tel: +353 (0) 61 707100, FAX: +353 (0) 61 707106