



ibaPDA-Request-HPCI

Request Data Interface to HPCi Systems

Manual Issue 2.1

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The current version is available for download on our web site www.iba-ag.com.

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2.1	08-2021	interface settings: new option	cv/rm	7.3.1

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Content

1	About this Manual5		
	1.1	Target group and previous knowledge5	
	1.2	Notations5	
	1.3	Used symbols6	
2	System	requirements7	
3	ibaPDA-	Request-HPCI9	
	3.1	Connection between HPCi and ibaPDA9	
4	Configu	ration and engineering HPCi systems11	
	4.1	DASAGNT	
	4.1.1	Changing Network Interface for Control Path11	
	4.1.2	Changing Multicast Address	
	4.1.3	Changing the Default Overload Protection Limits13	
	4.2	Hardware Definition14	
	4.2.1	CC100/DGM20014	
	4.2.2	SM128V	
	4.2.3	Reflective Memory	
	4.2.4	ibaLink-VME board in P2P mode20	
	4.3	DAS address book builder23	
	4.4	Useful P80i Functions	
	4.4.1	Script Erase	
	4.4.2	FTP Update	
5	Configu	ration and engineering ibaPDA25	
	5.1	General interface settings25	
	5.1.1	Diagnostics	
	5.2	HPCi Request Module	
	5.2.1	General module settings	
	5.3	Signal configuration	
	5.3.1	HPCi signal browser	
	5.3.2	Drag and drop with P80i	
	5.4	Request process	

7	Support	and contact	43
	6.5	Check the Historical Logger	40
	6.4	Module diagnostics	40
	6.3	Connection diagnostics with PING	39
	6.2	Log files	38
	6.1	Checking the license	38
6	Diagnost	ics	38
	5.6	HPCi Lite	37
	5.5	HPCi data modules	35

1 About this Manual

This document describes the function and application of the software interface

ibaPDA-Request-HPCI

This documentation is a supplement to the *ibaPDA* manual. Information about all the other characteristics and functions of *ibaPDA* can be found in the *ibaPDA* manual or in the online help.

1.1 Target group and previous knowledge

This documentation addresses qualified professionals, who are familiar with handling electrical and electronic modules as well as communication and measurement technology. A person is regarded as a professional if he/she is capable of assessing the work assigned to him/her and recognizing possible risks on the basis of his/her specialist training, knowledge and experience and knowledge of the standard regulations.

This documentation in particular addresses persons, who are concerned with the configuration, test, commissioning or maintenance of Programmable Logic Controllers of the supported products. For the handling of *ibaPDA-Request-HPCI* the following basic knowledge is required and/or useful

- Basic knowledge of *ibaPDA*
- Basic knowledge of network technology
- Knowledge of configuration and operation of the relevant control system

1.2 Notations

In this manual, the following notations are used:

Action	Notation
Menu command	Menu <i>Logic diagram</i>
Calling the menu command	Step 1 – Step 2 – Step 3 – Step x
	Example: Select the menu <i>Logic diagram - Add - New function block</i> .
Кеуѕ	<key name=""></key>
	Example: <alt>; <f1></f1></alt>
Press the keys simultaneously	<key name=""> + <key name=""></key></key>
	Example: <alt> + <ctrl></ctrl></alt>
Buttons	<key name=""></key>
	Example: <ok>; <cancel></cancel></ok>
File names, paths	"Filename", "Path"
	Example: "Test.doc"

1.3 Used symbols

If safety instructions or other notes are used in this manual, they mean:

Danger!



The non-observance of this safety information may result in an imminent risk of death or severe injury:

• Observe the specified measures.

Warning!



The non-observance of this safety information may result in a potential risk of death or severe injury!

• Observe the specified measures.

Caution!



The non-observance of this safety information may result in a potential risk of injury or material damage!

Observe the specified measures

Note



A note specifies special requirements or actions to be observed.

Tip



Tip or example as a helpful note or insider tip to make the work a little bit easier.

Other documentation



Reference to additional documentation or further reading.

2 System requirements

- *ibaPDA* v7.3.1 or higher
- Additional license for *ibaPDA-Request-HPCI*
- If Reflective Memory is used as a data path:
 - Additional license ibaPDA-Interface-Reflective-Memory
 - Fibre optic card of the Abaco's 5576 or 5565 Reflective Memory family (such as PCIE-5565PIORC) in the ibaPDA computer
- If DGM200 is used as a data path:
 - Additional license *ibaPDA-Interface-HPCI-DGM200P* + interface card DGM 200-P or
 - Additional license *ibaPDA-Interface-HPCI-DGM200E* + communication adapter DGM 200-E
- HPCi v3.3.x or higher
- HPC-HWC-Tool v2.46
- "DASAGNT"-HPCi-driver v1.1.0

Licenses

Order no.	Product name	Description
31.001300	ibaPDA-Request-HPCI	Extension license for an ibaPDA sys- tem to be able to use the request functionality with HPCi systems
31.001009	ibaPDA-Interface-HPCI-DGM200E	Extension license for an ibaPDA system for a DGM200E interface via DGM 200-E communication adapter No. of connections: max. 4 DGM 200 networks with up to 20 controllers
		each
31.001010	ibaPDA-Interface-HPCI-DGM200P	Extension license for an ibaPDA system for a DGM200P interface via DGM 200-P PCI card
31.001220	ibaPDA-Interface-ReflectiveMemory	Extension license for an ibaPDA sys- tem for a reflective memory inter- face

Table 1: Available licenses

Hardware

Order no.	Product name	Description
19.114003	RTNET-PCIE-5565PIORC	PC plug-in board for reflective mem-
		ory

Table 2: Hardware

The Reflective Memory card as well as other modules for the Reflective Memory communication are manufactured and sold by Abaco Systems.

A PCI card DGM 200-P or a communication board DGM 200-E should be obtained directly from GE Energy Power Conversion.

3 ibaPDA-Request-HPCI

The Request interface *ibaPDA-Request-HPCI* is suitable for the measuring data acquisition with a free symbol selection from HPCi automation systems of GE Energy Power Conversion via different interfaces. The Request interface provides *ibaPDA* with symbolic access to all signals defined in the HPCi system. The user can change the list of signals he wants to measure without having to change anything in the HPCi system.

3.1 Connection between HPCi and ibaPDA

An HPCi system consists of one or more controllers. Each controller is a VME-rack or a PC based controller. A VME-based controller can contain up to 4 CPUs. Every CPU has an Ethernet connection. PC based controllers (APC620/810 or RXi042/142) use their Ethernet network adapter respectively.



Fig. 1: Possible connections between HPCi system and ibaPDA

Currently supported interfaces:

- CC100 system (based on DGM 200 hardware)
- iba SM128V boards and ibaLink-VME board in SM128 compatibility mode
- Reflective Memory 5576 and 5565 boards of GE/ABACO
- ibaLink-VME in P2P mode D

An agent called DASAGNT (data acquisition system agent) needs to be loaded on every CPU or PC respectively. *ibaPDA* communicates with these agents via TCP/IP. The agents are responsible for cyclically sending the requested signals to *ibaPDA*. They can use different data interfaces to transmit the data.

The agents announce their presence via IP multicast. Every 10 seconds they send a status message to a predefined multicast group. This message contains amongst others the name of the CPU, its IP-address and the data interfaces that are available. *ibaPDA* joins the multicast group and listens for these status messages. When *ibaPDA* receives a multicast status message it establishes a TCP connection to the agent. This connection is called the *control path*. The agent will now send the status messages via the TCP connection instead of via multicast. *ibaPDA* responds to the status messages with another status message. This exchange of status messages acts as a watchdog. If *ibaPDA* or the agent doesn't receive a status message every 10 seconds then the connection is closed.

Once the control path is established *ibaPDA* tries to establish the *data path*. It tries to find the data interfaces in the PC that corresponds with the data interfaces the agent has. *ibaPDA* sends a data path discovery message to the agent. The agent then writes a certain pattern onto the data interface. *ibaPDA* then tries to find that pattern on the boards in the PC. This process is repeated for all data interfaces reported by the agent. This system of automatic discovery of the data path makes the system a lot easier to use because the user doesn't have to configure the data path on the PC.

The user can browse a list of all HPCi signals in *ibaPDA*. He can make a selection of all the signals he wants to measure. He can also decide how fast he wants to measure each signal. There are 4 time classes available (default: 1 ms, 5 ms, 10 ms and 100 ms). When the user starts the measurement *ibaPDA* will send the list of signals via the control path to the agent. The agent will check if all signals are available. He will also check if the sending of the data will not overload the CPU.

See also chapter **7** Changing the Default Overload Protection Limits, page 13

If everything is ok then the agent will start sending the data via the data path to *ibaPDA*.

4 Configuration and engineering HPCi systems

4.1 DASAGNT

DASAGNT is an HPCi-driver written by GE Energy Power Conversion. It is automatically selected if one of the following boards is inserted into the hardware configuration:

- ibaLink-SM128-V
- ibaLink-VME
- VME 5565/5576 Reflective Memory
- PCI-/PCIE-5565PIORC or PCI-5576 Reflective Memory
- DGM 200-V
- DGM 200-P

4.1.1 Changing Network Interface for Control Path

By default the primary network interface of the HPCi CPU is used for TCP/IP communication with the *ibaPDA* PC.

DASAGNTO.INI can be adapted to use a specific network interface. The steps below describe how to select the network interface which is used for the control path.

- 1. Open the file DASAGNTO.INI, which is located at "P80_projectname.CTRL\Advanced\Configuration\"
- 2. Select a specific network interface by adapting the variable ETHIF

fei0 -> primary network interface

fei1 -> secondary network interface

For HPCi controllers with a Gigabit Ethernet controller such as the VP325 card, the primary and secondary network interfaces are called **gei0** and **gei1**.

3. Increase the variable *BUILDNO* by one (1), so P80i will notice the settings are changed. In P80i:

Right-click on the CPU -> Build all

Right-click on the CPU -> Online -> Load & restart

4. Restart system

iba

4.1.2 Changing Multicast Address

Note



Changing the multicast address is only necessary in case multiple clusters of HPCi controllers are connected via a factory-wide network and each HPCi cluster has its own dedicated *ibaPDA* server.

To prevent controllers from logging into the wrong *ibaPDA* server, each member of the cluster must be given the same multicast address of their corresponding *ibaPDA* server. Each cluster including its *ibaPDA* Server must therefore have its own unique multicast address.

- 1. Open the file *DASAGNTO.INI*, which is located at "*P80_projectname*.CTRL\Advanced\Configuration\".
- 2. Assign a multicast address to the variable MULTICAST_IP
- 3. Increase the variable *BUILDNO* by one (1), so P80i will notice the settings are changed. In P80i:

Right-click on the CPU -> Build all

Right-click on the CPU -> Online -> Load & restart

- 4. Restart system.
- 5. Generate the addressor by means of the Address book Builder.
- 6. Open the file TOC.INI, which is located in the Address book directory.
- 7. Assign the same multicast address as in DASAGNTO.INI to the variable *AGENT_MULTICAST_IP*.
- 8. Increase the variable *FileVersion* by one (1), so *ibaPDA* will notice the settings are changed.

4.1.3 Changing the Default Overload Protection Limits

- The DASAGNT driver has a build-in overload protection to prevent CPU overload by requesting too many signals. The default limit for the load caused by the DASAGNT itself is 30 %. The DASAGNT is calculating this value based on a 1 μs VME transfer time per 4 bytes of data. The DASAGNT checks also if the **total load** will not exceed 90 %. (Total load = load caused by the application and estimated load of the DASAGNT itself).
- 2. To change these default limits, open the file DASAGNTO.INI, which is located at "*P80_projectname*.CTRL\Advanced\Configuration\"
- 3. Following 2 parameters can be added/changed in the [GENERAL] section:

MAX_ALLOWED_LOAD=30

MAX_SYSTEM_LOAD=90

- The above mentioned values are the default values for the load limits in percentage.
 MAX_ALLOWED_LOAD is the limit for the DASAGNT load
 MAX_SYSTEM_LOAD is the total load limit
- 5. After changing one of these values, increase the variable *BUILDNO* by one (1), so P80i will notice the settings are changed.

4.2 Hardware Definition

The next step is the definition of the hardware that will be used to transfer the data to *ibaPDA*. There are 4 options:

- DGM 200-V/DGM 200-P
- ibaLink-SM-128V boards (or ibaLink-VME in SM128 mode)
- Reflective Memory 5565/5576 boards
- ibaLink-VME board in P2P mode.

The DGM 200 boards cannot be used in combination with ibaLink-SM-128V or Reflective Memory. The ibaLink-SM-128V and Reflective Memory boards can be used together. The ibaLink-VME which simulates a Reflective Memory board cannot be used together with a real Reflective Memory board.

4.2.1 CC100/DGM200

DGM stands for Deterministic Global Memory and is an enhanced hardware platform for the CC100 network. The CC100 network has a star topology with the concentrator DGM 200-C in the center. The DGM 200-V is the VME board that fits in the HPCi rack. The DGM 200-P is the PCI board that fits in the APC- or RXi-PC on the HPCi side as well as in the ibaPDA PC (PCI slot required). The DGM 200-E communication board can be used as an external media adapter for the *ibaPDA* PC instead of the DGM 200-P board if the PC has no PCI slots.

The Coordination Channel Manager program (CCM32.exe) is used to configure the CC100 network. Version 2.17a or higher of CCM is required. On the ring properties you have to enable support for HPCi request by checking the *Support of DAS symbolic request with CC100* checkbox.

Ring Properties	<
Ring:	
CC100 Ring 0	
Hardware:	
DGM 200	
✓ Support of DAS symbolic request with CC100	
Comment 1:	
Comment 2:	
Time Class in ms:	
TC 1: 1 TC 2: 5	
TC 3: [10 TC 4: [100	

In the properties of each controller on the DGM network you have to reserve some space for the DASAGNT. For each time class you have to specify how many bytes you want to use to transfer HPCi request data. You do this by filling in the DAS column on the controller properties dialog.

Contoller Properties			×
Controller Name			
SM12			
Controller Type:			
C80-HPCi			•
Comment 1:			
Comment 2:			
- Memory Management fo	or TC 1 - TC 4 in Byte:		
M (TC 1): 256	Used: 4	M (DAS TC1):	64 <u>I</u>
M (TC 2): 512	Used: 8	M (DAS TC2):	128
M (TC 3): 1024	Used: 0	M (DAS TC3):	256
M (TC 4): 2048	Used: 0	M (DAS TC4):	512
	OK	Cancel	

Finally, in the P80i hardware configuration tool, you have to enable HPCi request support in the properties of the DGM 200-V board for VME-based controllers or of the DGM 200-P board



for PC-based controllers. You do this by checking the checkbox called *Support for Data-Acquisition-System (DAS-Agent)* or "*IBA Request Mode*" respectively. This will enable the DGM to be used by the DASAGNT.

	Rack 0: DPU-K.1 - Slot 0011		
	DGM200V: Communication Board: CC100		
	Board Details Type: DGM200V Article No: 029.356081 Location : Rack 0 Slot		
	Adjustments CC100 Name HPC1 A32 Baseaddress 0x09000000 Comment : Test DGM200E 7 6 F ""IBA Request Mode" 3 2 ON_0FE 0N_0FE 0N_0FE 0N_0FE		
Slot J U J T J Board VCM VMIC 232 7700 CPU 1 no.	Coordination Channel Manager (CCM32) Tool C:\CCM32\CCM32.exe Call		
	UK Cancel		

Example DGM 200-V

General	Configuration	Global CPU-Driver Options	
		DGM200P: Communication Board: CC100	
		- Board Details	
		Type: DGM200P Article No: 029.356083	
		Slot 1	
		Comment :	
		I ''IBA Request Mode''	
Slot			
Board	, , , , ,		
		Loordination Channel Manager (LLM32)	-
		UK Lancel	
		Dejete	<u>E</u> ait

Example DGM 200-P

4.2.2 SM128V

The ibaLink-SM-128V-i-20 (short: SM128V) board is a VME board that has 2 fiber optical output channels and 1 fiber optical input channel. Only the 2 output channels are used by HPCi request. Each channel can transfer 264 bytes of data. 8 bytes are always reserved for digital values. The other 256 bytes can be used for both analog and digital values. There are 4 SM128V boards supported in one rack.

The only thing you have to do to use the SM128V for HPCi request is add one or more SM128V boards to the hardware configuration of your P80i project.

0: DPU-K - Sk			
	SM128V: Special Board: Data	Acquisition System	
	Board Details Type: SM1 Location: Rack	28V Article-No.: 029.350983 0 Slot 4 Instance 0	
3 4 E IIC SM 00 128V	A32-Base-Address 0x77900000 Time classes ▼ TC1: 1000 μs ▼ TC2: 5000 μs ▼ TC3: 10000 μs ▼ TC4: 100000 μs	DIP-Switch-Adjustments S1 TEST IRQ2 XXX CH1-BIG CH2-BIG Or off OK Cancel DIP-Switch-Adjustments S2 A24/A32 A40MD32 A25 A24 A24 A23 A24 A23 A22 A21 A21	

The VME base address is normally calculated by the hardware tool. If you want to change it then you have to enable extended mode in the hardware tool. The dialog also shows you how to set the DIP switches on the board. The 2 channels must be set to big-endian mode otherwise the data will arrive swapped on the FOB board in the PC.

_			
120 e	HpcHwcTool - [HPC1.CTRL]		
	🕎 File Window Help		
e			
	General Configuration Global CPU-Driver Options		
Image: Window Help Image: Second Se			

In the properties of the SM128V board you can also set the 4 different time classes. You can decide which of the time classes can be used on this board. The easiest way is to just select all of the time classes. *ibaPDA* will distribute all requested signals from all time classes over the SM128V boards automatically.



iba

Note



Because the board *ibaLink-SM-128V-i-20* is an outdated model, the successor board *ibaLink-VME* may be used as a replacement or spare part when set on a mode which is compatible to the old board (rotary switch S1 on "0" or "8").

4.2.3 Reflective Memory

For a VME rack based controller the Reflective Memory boards VME-5565 and former VME-5576 (formerly VMIVME5565/5576) are supported. For the PC-based controllers (APC... and RXi...) the Reflective Memory boards PCI- or PCIE-5565PIORC and former PCI-5576 (formerly VMIPCI5565/5576) are supported. A PCI- or PCIE-board should also be installed in the *ibaPDA* computer.

The only thing you have to do in order to use the Reflective Memory board for HPCi request is to add it to the hardware configuration of your P80i project.

General Configuration Global CPU-Driver	r Options
Back 0: DPU-K 1	-Slot 00.11
	- 500 00.11
	VMIC5565/VMIC5576: Special board: VMIVME-5565/5576 (Reflective Mem 🔀
	Board details
	Type : VMIC5565 Order-No.: 029.?????
	Location: Rack: 0 Slot: 3
	A32-Baseaddress Memory-size Memory not used by Measuring-system Memory-size Memory not used by Measuring-system 0x777000000 128 MByte 4 kByte
	Memory reserved for Measuring-system (DAS-Agent)
	Timeclass Cycletime Memory-size offset
Slot J 0 J 1 J 2 J 3 J 4 J Board VCM VMIC VMIC	TC1: 1000 μs 4 kByte 0x1000
232 7700 5565	TC2: 5000 μs 4 kByte 0x2000
no.	TC3: 10000 µs 4 kByte 0x3000
Maximum Curre	TC4: 100000 µs 4 kByte 0x4000
Maximum Curren Maximum Curren Maximu	OK Cancel

Example VME- Reflective Memory board VMIVME5565

The VME base address is normally calculated by the hardware tool. If you want to change it then you have to enable extended mode in the hardware tool.

20 9	罾 HpcHwcTool - [HPC1.CTRL]
	File Window Help
30	a ? K?
	General Configuration Global CPU-Driver Options
	Use KK'S longnames
	Extended mode
	No warning if newer firmware version exist
	SLM-Configuration SVM-Configuration

You must setup the correct memory size of the board. You also have to configure how much memory is used by the application and how much memory can be used by the HPCi request system for the 4 time classes.

If you are using the VMIVME-5576 (VME-5576) board then you must set the swap mode of the board VMIPCI-5576 (PCI-5576) **in** *ibaPDA* to *Byte and word swap*. This is needed because the HPCi CPUs perform all VME-bus accesses in big-endian and the PC CPUs are little-endian. If you are using the VMIVME-5565 (VME-5565) board then the swapping is done by the boards automatically.

Example for PC-based controller

General Configuration G	alobal CPU-Driver Options	
	VMIC5565/VMIC5576: Special boa Board details Type : PCI5565	ord: VMIVME-5565/5576 (Reflective Mem 🔀
		Slot: 1
Slot 5 4 3 Board	Memory-s ■ 128 Memory-s ■ 128 Memory-system (■ "IBA Request Mode" Timeclass Cycletime TC1: 1000 µs TC2: 5000 µs TC3: 10000 µs TC4: 100000 µs OK	Memory not used by Measuring-system Byte 4 kByte DAS-Agent) offset 4 kByte 0x1000 4 kByte 0x2000 4 kByte 0x3000 4 kByte 0x3000 5 Cancel 5

Example Reflective Memory board PCI-5565

1		HpcHwcTool - [BUR.CTRL]
	Dor	File Window Help
9	8	₽ 🥐 💦
	[General Configuration Global CPU-Driver Options
		Use KK'S longnames
		Extended mode
		No warning if newer firmware version exist

4.2.4 ibaLink-VME board in P2P mode

The ibaLink-VME board is a VME board that has 2 fiber optical output channels and 1 fiber optical input channel. Only **channel 1 output** is used by HPCi request. The ibaLink-VME has to be set in P2P mode D.

Other documentation



For more details about the different modes of the *ibaLink-VME* board, please refer to the *ibaLink-VME* manual.

Using this mode the *ibaLink-VME* can transfer 4024 bytes with 1.4 ms refresh rate. These 4024 bytes can be used for both analog and digital values. The *ibaLink-VME* is not natively supported by the DASAGNT driver. To be able to use the *ibaLink-VME*, we declare the *ibaLink-VME* in the HPCi hardware configuration as a Reflective Memory VMIC5565 board. In P80i, the old name of the board is still used.

So from the point of view of the DASAGNT, the *ibaLink-VME* is treated as Reflective Memory and reported as such in loggings and reporting tools. There is only 1 *ibaLink-VME* board supported in one rack. (Limitation due to the Reflective Memory simulation)

The only thing you have to do to use the *ibaLink-VME* board for HPCi request is add the VMIC5565 board to the hardware configuration of your P80i project. But before doing this, you have to enable the extended mode in the hardware tool as depicted below.

HpcHwcTool - [IBA.CTRL]
🔛 File Window Help
a ? №
General Configuration Global CPU-Driver ID-Logging Options
🔲 Use KK'S longnames
✓ Extended mode
No warning if newer firmware version exist
SLM-Configuration SVM-Configuration

Add the VMIC5565 board in the hardware configuration and edit the properties as illustrated below:

HpcHwcTool - [IBA.CTRL]	
👺 File Window Help	_ 8 ×
Consul Configuration Classed CDU Driver [10] and a Device	<u> </u>
VMIC5565/VMIC5576: Special board: VMIVME-5565/5576 (Reflective Mem 🔀	
Board details	
Type : VMIC5565 Order-No.: 029.?????	
Location: Rack: 0 Slot: 5	
A32-Baseaddress Memory-size Memory not used by Measuring-system	
0x7790c000 ↓ 128 MByte 0 kByte	
Memory reserved for Measuring-system (DAS-Agent)	
IIBA Request Mode"	
Timeclass Cycletime Memory-size offset	
Board VCM VMIC 10000 µs 1 Kbyte 0x800	
CPU 1 100000 µs 1 100000 µs 00000 0000 0000	
	-
Maximum Current Consumption at +12V: 0.001 A (0.1% of 1.3A)	
Maximum Power Consumption: 56.274 W	

- A32-Baseaddress : board base address + 0xC000 Base address 0x77900000 is generally used as the base address of the first *ibaLink-VME* (see *ibaLink-VME* manual). However we have to add an offset of 0xC000 to it so the DASAGNT driver can access the P2P send buffer.
- Memory-size: 128 Mbyte
- Memory not used by Measuring-system:
 Set this value to 0 to be able to use the complete range of 4024 bytes
- "IBA Request Mode" must be checked
- Configure the memory-size for each time-class. Keep in mind that there are only 4024 bytes available, which is little less than 4 Kbyte.



4.3 DAS address book builder

The DAS address book builder is a program developed by GE Energy Power Conversion. It generates a system overview file called toc.ini and address book files for all controllers in the HPCi system. The executable file DAS_ADDRESSBOOKBUILDER.exe can be started via the Windows start menu:



The first thing you should do is selecting a directory where the address book files generated by the address book builder need to be stored. This directory should also be accessible from the PC where the *ibaPDA* server is installed. When you have selected the directory then click the <Ap-ply> button. This will check the directory and generate an initial toc.ini file if there wasn't one in the directory or read it when it finds a toc.ini file.

Now you can add the controllers that make up your complete system. You do this by clicking on the <Add> button. This opens an *Open file* dialog. You have to select the requested controller there.

When you select a controller from the list on the left you can build its address books. If the number of resources or the names of the resources have changed then you must check the *Up-date Resource-configuration* checkbox. Click the <Build address books...> button to create the address books for the selected controller. There is one address book file xx.tsv created per resource in the controller plus one toc.ini file for the configuration data.



4.4 Useful P80i Functions

4.4.1 Script Erase

Script erase will delete all the data on the flash disk. To apply the erase the system needs to reboot.

Right-mouse click on CPU - Online - Infos Script Erase.



4.4.2 FTP Update

FTP Update can be used to load the VxWorks firmware, Systemparameters, Networkparameter and Webinterface Files into the HPCi CPU.

Hardware configuration - Double-Click on CPU - Select FTP Update tab

Board Details Type: VMIC7700 Article No:	OK Cancel
Location : Rack 0 Slot 1 General Startnarameter TCP/IP Network Memories FTP Update Flashdisk Installation	
Options IP Address [210.65.162.4] CVHPOL_V2\TARGET\SYS\WIC77X\WWORKS [CVHPOL_V2\TARGET\SYS\WIC77X\WWORKS] Systemparameter (sys.ini: Tabcontrol General, Startparameter and Memories) [L\S0L_F0S_MODEX\FINVALXILXXHB\XHB\CTRL\HWC\Cpus\CPU1\SYS.INI Image: Test and the system of the syste	START

5 Configuration and engineering ibaPDA

5.1 General interface settings

The interface *ibaPDA-Request-HPCI* is configured in the *ibaPDA* "I/O Manager". If all system requirements are met, the "HPCi Request" interface is displayed in the interface tree.

🔢 iba I/O Manager			— 🗆 X				
🗄 🗋 🎽 🚰 🎝 🌗 🕶 🛛 Hardware	Groups Outputs 🗎	18. Contract of the second sec					
⊕∰ General ⊕ <mark>⊡</mark> ibaCapture	HPCi Reque	est					
ibaFOB-4io-D	🙀 Overview 🐼 Dia	agnostics					
TC1 (30)	Properties						
TC 2 (31)	Active	Multicast IP address: 239.13.11.73 Port no.:	13245				
TC 4 (33)	Address book path:	C:\HPCi\AddressBooks					
Click to add module	Usemame:						
Playback	Password:		Test path				
	Disable signals on	Disable signals on non-responding CPUs HPCi CPU response timeout [s]:					
	Enable CPU recon	Enable CPU reconnect detection					
	Connect to CPUs v	Connect to CPUs without waiting for a multicast message					
	Use asynchronous mo	Use asynchronous mode for timeclasses:					
	SM12\CPU1 SM12\0	CPU2					

The interface has the following functions and configuration options:

Active

The interface can be enabled or disabled with the *Active* checkbox.

Addressbook path

Enter here the path to the address books. Enter user credentials if configured.

Click the <Test path> button to test the access to the path.

With the <Open log file> button you can open the log book entries generated during the connection setup in the default editor.

Click the <Apply and restart> button. You should then see all the CPUs that are configured in the system on the bottom. The color of the CPU corresponds to the status of the connection to the CPU. There are 3 possibilities:

- Red: There is no TCP connection and no data connection to the CPU
- Yellow: There is a TCP connection but no data connection to the CPU
- Green: There is a TCP connection and a data connection to the CPU

A CPU can also be flashing. This means that there is a connection to the CPU but it was not listed in the toc.ini file. This also means that there is no address book available for that CPU. If this happens then you should update the toc.ini via the DAS address book builder.

Disable signals on non-responding CPUs / HPCi CPU response timeout

At the start of acquisition all CPUs are polled. If the *Disable signals on non-responding CPUs* checkbox is checked and a CPU does not respond within the specified *HPCi CPU response timeout* then the related signals will be deactivated and the acquisition will be started without these



signals. The use of this option is recommended during commissioning or maintenance works, when some HPCi stations are switched off. If this option is not enabled the acquisition won't start until all CPUs have replied to the polling at start of acquisition.

Enable CPU reconnect detection

When *Enable CPU reconnect detection* is enabled then ibaPDA checks on a periodical basis whether an earlier non-responding CPU tries to reconnect. If a reconnection attempt has been detected, ibaPDA stops the acquisition and restarts the acquisition with the new CPU.

Connect to CPUs without waiting for a multicast message

When this option is enabled, *ibaPDA* will establish a unicast connection to each CPU, based on the IP address in the toc.ini file, as soon as possible. The option is disabled by default.

Generally, when starting the acquisition, *ibaPDA* waits for multicast messages sent by the CPUs before establishing the connection. In some cases the multicast messages can be delayed significantly due to network problems, particularly in networks with routers or switches using IGMP Snooping.

Use asynchronous mode for time classes

The asynchronous mode setting for the time classes determines when the driver of *ibaPDA* will copy data from the boards. If asynchronous mode is off then the data is copied during the interrupt service routine. If asynchronous mode is on then the data is copied on a separate thread outside of the interrupt service routine. Normally asynchronous mode should be off. Asynchronous mode is only needed when the interrupt service routine takes more than 1000 μ s to copy all the data from the boards. You can check this by going to the *General* node in the I/O Manager and checking the *Interrupt info* tab.

🔢 iba I/O Manager		— 🗆 X
🗄 🗋 💕 😼 🎝 💽 🔹 Hardware	Groups Outputs I 🗈 🛍	
B	General	
HPCi Request	🗱 Settings 🗸 Interrupt info 🗿 Timing 🔢 Boards 🔢 Interfaces 🏋 Watchdog	
TC1 (30) TC 2 (31) TC 3 (32)	Driver status : Loaded	
	Interrupts : 4268598	
Click to add module	iba PCI interrupts : 0 Interrupt buffer size : 50 🖨 MB	
Playback	Non-iba PCI interrupts : 0 Interrupt buffer fill level :	
	Internal timer counter : 0 0%	
	Time correction : ? Timer resolution : 999 µs	
	Acquisition thread CPU usage : ?	
	Interrupt Asynchronous mode Multi-processor	
	Interrupt times [µs] Actual : 63.072 Mn : 6.829 Max : 101,767	Reset counters
	Interrupt cycle times [µs]	
	Actual : 1000,109	
	Min : 959,130	
	Max : 1040,790	
	Max missed interrupts : Recovered interrupts :?	

If the maximum interrupt time is larger than 1000 μ s then you should enable asynchronous mode for time class 4. Restart the measurement and check the maximum interrupt time again. If it is still larger than 1000 μ s then try enabling asynchronous mode also for time class 3. Finally you can also enable asynchronous mode for time class 2 if it is necessary.



Note



If using a Reflective Memory PCI-/PCIE-5565PIORC board, it is highly recommended to always use the asynchronous mode for time classes 2, 3 and 4. This board supports DMA which can transfer data with much less CPU overhead.

Note



If using the DGM200E interface, check the properties settings of the network adapter which is connected to the DGM200E-device. The *Jumbo Packets* should be enabled and set at 9014 bytes, if available.

See manual ibaPDA-Interface-HPCi-DGM200E, chapter 5.2.1 for details.

5.1.1 Diagnostics

On the *Diagnostics* tab of the *HPCi Request* interface you can find some extra diagnostic info. Connected CPUs send the rack configuration in their status messages. This rack configuration is shown on the *Diagnostics* tab.



If you select the CPU in the tree then you get some extra information about it. You can view the CPU load and the load generated by the agent. You can see the status of the TCP connection and you can also see the data interfaces on the HPCi side and their counterparts on the PC side.

ibə

🔢 iba I/O Manager										_		×
🗄 🗋 💕 🛃 🌒 🌗 🕶 Hardware	Groups Outputs 🗎 🛍											
General ibaCapture ibaCopture ibaCopture	HPCi Request											
	Diagnosti	CS										
			CPU Info						_			
TC 3 (32)	CPU2		Full Name:		SM12	VCPU1		CPU load:	L	3	,80%	
TC 4 (33)			Symbols:		Loa	ided		Agent load:	L	0	,20%	
			No. of resources:		1		Agent version:		L	1.1.0		
Playback			Time:		23:4	9:52		No. of requested signal	ls:		57	
tern J∞ Virtual tern J∞ Unmapped			Time classes:		1 ms		5 ms	10 ms	[100 m	5	
			TCP/IP Info						_			
		Status:			Connected			Sequence errors:		0		
			IP Address:		192.168.123.201			Port No.:		13245		
			Send counter:		65			Receive counter:		64		
			Watchdog response:		6	0	Watchdog:				59	
			Discovery:		4	4	Discovery response:			4		
			Request: 1 Request response:				1					
			Data interfaces									
			All interfaces four	ıd:	0	ιK						
		HPCi PC										
		TC Interface Offset Size Interface Offset							t .	Size	00	
		2 RM Slot 7 0x00			002000	0x1000	Beflective Memory 5576 0x		0x00	:00002000 Ux (00003000 0x		00
		3 RM Slot 7 0x00		0004000	0x1000)x1000 Reflective Memory 5576 0		0x00)x00004000		00	
			4 RM Slot 7	0x00	0005000	0x1000	Reflec	tive Memory 5576	0x00	005000	0x10	00
		T	1 1 1 1 1 1 1	11								
	0 256 512 768		1024 1280	1!	536 179	2 00	234	ОК	Appl	ly	Cano	el

The example below shows the use of the *ibaLink-VME* board on the HPCi side and the *iba-FOB-io-ExpressCard* in a portable PC.

😰 iba I/O Manager										
🗄 🗋 📂 🈂 🛃 🔊 🔹 Hardware Groups Technostring Outputs 🐚 🛍										
Constant Configuration to Constant Constan										
baCapture-HMI										
Click to add module	CPU Info									
ibaFOB-io-ExpressCard/54	Full Name:	IBA\CPU1	CPU load:		3,30%					
Enk 0	Symbols:	Loaded	Agent load:		0,70%					
	No. of resources:	2	Agent version:		1.3.2					
Click to add module	Time:	13:42:11	No. of requested a	signals:	253					
EGD E	Time classes:	1 ms	5 ms 10 ms	100 ms						
Click to add module	TCP/IP Info									
Click to add module	Status:	Connected	ted Sequence errors:							
GCOM	IP Address:	192.168.123.201	Port No.:		13245					
	Send counter:	64	Receive counter:		63					
	Watchdog response:	57	Watchdog:		56					
Click to add module	Discovery:	4	Discovery response	se:	4					
Generic TCP	Request:	3	Request response	e:	3					
Click to add module	D									
Click to add module	Data interraces		-							
EC 61850 Client	Interfaces found:	4/4								
Click to add module	HPCi		PC							
	TC Interface	Offset Size	Interface	Offset	Size	≠				
Click to add module	1 ibaLink-VME Slot 5	0x0000000 0x04	00 ibaFOB-io-ExpressCard/54 Link 0	0x00024024	0x0400					
Click to add module	2 ibaLink-VME Slot 5	0x00000400 0x04	0 ibaEOB-io-ExpressCard/54Link 0 0x0002		0x0400					
Modbus TCP Client	3 ibal ink-VME Slot 5	0x00000800 0x04	00 ibaEOB-io-ExpressCard/54Link 0	0x00024824	0x0400					
Click to add module	4 ibal ink-VME Slot 5	0x00000000 0x04	00 ibaEOB-io-ExpressCard/541 ink 0	0x00024C24	0x0388					
S Modbus TCP Server		0,000000000000		020027027	0,0000					
Click to add module										
Cick to add module										

5.2 HPCi Request Module

Add an HPCi Request module in the I/O Manager by clicking below the HPCi Request interface. Select the desired module type and click <OK>.

🔢 iba I/O Manager	
🗄 🗋 📂 🎬 📕 🌒 🕒 📲	ardware Groups Outputs 🗎 🛍
E	HPCi Request
ibaFOB-2io-D	🖀 Add module 📃 🔀
DTBox Request	Name : HPCI Request
MQTT	Module type :
X-Pact	Request
Click to add module	
Click to add device	
Click to add module	OK Cancel
EGD	

5.2.1 General module settings

🔢 iba I/O Manager					_		×
🗄 🗋 💕 🚰 🌒 🌗 🕶 Hardware	Groups Outputs 🗎 🛍						
	TC 1 (33)						
	General 🔨 Analog 🛛	Digital					
TC 2 (34)	✓ Basic						
	Module Type	HPCi Request					
TC 4 (36)	Locked	False					
Click to add module	Enabled	True					
	Name	TC 1					
	Module No.	33					
	limebase	10 ms					
	Use name as prefix	Faise					
	Time class	1 · 1 me					
	✓ Module Lavout	1.1113					
	No. analog signals	32	_				
	No. digital signals	32					
	Time class The time class determines HPCi system to ibaPDA.	how fast the data is sent from the					
	Select HPCi symbols						
	0 256 512 768	1024 1280 1536 1	⁷⁹² ∞ 25	5 ОК	Apply	Cano	:el

Basic settings

Module Type (information only)

Indicates the type of the current module.

Locked

A module can be locked to avoid unintentional or unauthorized changing of the module settings.

Enabled

Disabled modules are excluded from signal acquisition.

Name

The plain text name should be entered here as the module designation.

Module No.

Internal reference number of the module. This number determines the order of the modules in the signal tree of ibaPDA client and ibaAnalyzer.

Time base

All signals of the module will be sampled on this time base.

Use name as prefix

Puts the module name in front of the signal names.

HPCi

Time class

Select the time class from the dropdown menu. The time class is the rate at which the DASAGNT driver will send the data for this module to *ibaPDA*. The time base (in modules's basic settings) is the rate at which *ibaPDA* will sample the data it receives from the DASAGNT. Usually time class and time base are set to the same value.

Module Layout

No. analog / digital signals

Defines the number of configurable analog/digital signals in the signal tables. A maximum of 1000 signals for each are allowed.

Select HPCi symbols

When you click on the *Select HPCi symbols* hyperlink the HPCi signal browser will open.

5.3 Signal configuration

Once the connection to the CPU has been successfully established and the address book has been generated, the signals can be configured in the *Analog* and *Digital* signal tables of the module.

You have different methods to do this. The more convenient and save way to configure the signals to be measured is either using the HPCi signal browser or the drag & drop method.



5.3.1 HPCi signal browser

Use the HPCi signal browser for selecting the signals to be measured.

In order to display the signals in the browser, make sure that the path of an address book file has been entered in the field Address book path, in the Overview tab on the HPCi Request interface node in the I/O Manager. In this path, there should be a valid file toc.ini as well as the corresponding address book files (*.tsv) of the HPCi stations.

The signal browser can be opened in different ways:

- In the *General* tab of an HPCi Request module click on the hyperlink *Select HPCi symbols*.
- Click on the little browser button < ... > in the *Analog* tab of an HPCi Request module, in the fields of column *HPCi Symbol*.
- Click on the little browser button < ... > in the *Digital* tab of an HPCi Request module, in the fields of column *HPCi Symbol*.

S HPCi signal browser				×
HPCi Signal : SM12\CPU\RES2\Ramp.Error	r			
Comment 1 :				
Comment 2 :				
M Resources Q Search	Name		Address	Datatype
SM12	S Error		W00001	BOOL
CPU1	S GreaterThanZero		W00005	BOOL
🖨 🎁 RES1	S Ramp		W00004	FLOAT
⊡K [⊕]	S Trigger		W00000	BOOL
— <mark>К</mark>				
E CPU2				
🖻 🛗 RE52				
K				
K& Counter				
Kamp				
Hide signals that don't have a KK'S name				
Hide CC100 signals				
Use comment 1 as signal name		Reload address book	Add	Close

HPCi signal browser for HPCi Request modules

On the left side, in the *Resources* tab, a tree structure will appear containing the signal sources parsed from the address book file. For HPCi Request, the top-level node is the plant, comprising the controllers, the resources and the station nodes which finally contain the signals.

If you select a station node, you can see the signals on the right.

In the upper part of the dialog you find the name of the selected signal and - if available - the comment(s).

You can double-click on a signal to add it to the module. You can also select multiple signals by holding <CTRL> or <SHIFT> while selecting. When you click the <Add> button all selected signals are added to the module.

Search function

With the text based search function you can look for available signals by their name.

Click on the <Search> button in the *Search* tab and enter the complete text or a part of it into the *Search signal* dialog. Optionally, you can extend the search on the comments. Alternatively, you can look for KK'S names.

The search result is again a tree structure in the *Search* tab, which contains only the signals matching the search criteria. Proceed in the same way like in the *Resources* tab in order to add the requested signals to the signal table.

Option "Hide signals that don't have a KK'S name"

If you enable this option, only signals with KK'S names will be shown.

Option "Hide CC100 signals"

If you enable this option, signals which had been configured for CC100 with the CCM32 tool will be hidden.

Тір



The CC100 signals can be read in an efficient way by using the HPCi Lite module without generating addional stress on the CPU.

See **7** HPCi Lite, page 37 or the manual of *ibaPDA-Interface-HPCi-DGM200E*.

Option "Use comment 1 as signal name"

When selecting a signal from the signal browser, the HPCi symbol name will be automatically transmitted into the "Name" column. You may change the name manually afterwards. If you enable this option, the comment 1 will be used for signal name instead of the symbol name.

If required, you can reverse this in the signal table by using the context menu any time.

Button <Reload address book>

If no signals are shown in the browser or if the contents is obviously outdated, click on this button in order to reload the address book. If still no signals appear, then there is probably something wrong with the format or the path name of the supplied address book file.

32



5.3.2 Drag and drop with P80i

An alternative way of selecting signals is using drag & drop between P80i and the *ibaPDA* client. If the *ibaPDA* client is installed on a PC where P80i is also installed then you can open your project in P80i and just drag the signals you want to measure from P80i to *ibaPDA*.



You can select signals from multiple CPUs in the module. They don't even have to belong to the same controller.



5.4 Request process

When you have configured the HPCi Request interface and you have added some HPCi Request modules then you can click the <OK> button to start the acquisition. The request process has several steps:

- 1. A stop message is sent to all connected CPUs.
- 2. Wait until the data interfaces of all active CPUs are discovered.
- 3. Map the signals on to the data interfaces.
- 4. Send request messages to the active CPUs.
- 5. Wait for the responses to the request messages.
- 6. If the responses are ok then start acquisition otherwise let the user decide what to do.

The progress of the request process is shown on the *ibaPDA* client.

🞑 HPCi communication status overview	
SM12\CPU1 : Requesting signals SM12\CPU2 : Requesting signals	
	Abort acquisition (176)

If there is some error during the request process you can decide what to do next. You can decide to abort the acquisition. You can also decide to temporarily disable the signals on the non-responding CPUs and then try to start the acquisition again.

🔯 HPCi communication status overview	/	• • •
9 SM12\CPU1 : Data interfaces discovered SM12\CPU2 : Disconnected		
	Disable invalid signals and start acquisition	Abort acquisition (153)

5.5 HPCi data modules

ibaPDA automatically maps the requested signals onto the available data interfaces for the CPUs. The HPCi data modules are generated during this mapping. These data modules are also shown in the I/O manager but they are just for diagnostics.

You find the data modules under the interface which is used for the data channel.

Data Channel Hardware Interface	I/O Manager Interface for Data Modules
ibaLink-SM-128V-i-20	ibaFOB-ioD/-Dexp/-ExpressCard
Reflective Memory	Reflective Memory
ibaLink-VME in P2P mode	ibaFOB-ioD/-Dexp/-ExpressCard
DGM 200-P	DGM200P
DGM 200-E	DGM200E

🙂 iba I/O Manager							∙e -	
📄 💕 🛃 🏹 💽 Hardware G	roups	Technostri	ng Alarms 🗈 🛍					
· · · · · · · · · · · · · · · · · · ·	H	PCi D	ata SM128					
Click to add module	[Analog	[Digital					
		ID .	HPCi Symbol	Address	DataType	Actual		^
- 🙀 TC 2 (2)		🖃 Time cla	ss: 1					
- 🧛 TC 3 (3)	0	[1:0]	SM12\CPU1\RES1\Sinus	0x3000	FLOAT	9,686343		
TC 4 (4)	1	[1:1]	SM12\CPU1\RES1\W00007	0x3004	DINT	0		
HPCi Request (5)	2	[1:2]	SM12\CPU1\RES1\W00012	0x3008	DINT	0		
Lick to add module	3	[1:3]	SM12\CPU2\RES2\.Counter.Counter	r 0x300C	DINT	4252		
	4	[1:4]	SM12\CPU2\RES2\.Ramp.Ramp	0x3010	FLOAT	4,800303		_
HPCi Data SM128		🖃 Time cla	ss: 2					=
	5	[5:20]	SM12\CPU1\RES1\R00000	0x3014	FLOAT	20		
🗊 🖷 Link 2	6	[5:21]	SM12\CPU1\RES1\R00001	0x3018	FLOAT	-20		
🗊 📴 Link 3	7	[5:22]	SM12\CPU1\RES1\R00003	0x301C	DINT	3		
Click to add module	8	[5:23]	SM12\CPU1\RES1\R00004	0x3020	FLOAT	10		
E By Iba FUB 4i PCi	9	[5:24]	SM12\CPU1\RES1\R00005	0x3024	FLOAT	0		
	10	[5:25]	SM12\CPU1\RES1\R00006	0x3028	FLOAT	0,5		
∎ Ink 1	11	[5:26]	SM12\CPU1\RES1\R00007	0x302C	FLOAT	0,2		
∎ Ink 3	12	[5:27]	SM12\CPU1\RES1\R00008	0x3030	FLOAT	0,5		
Click to add module	13	[5:28]	SM12\CPU1\RES1\R00009	0x3034	FLOAT	1		
🖨 🖤 OPC	14	[5:29]	SM12\CPU1\RES1\R00017	0x3038	DINT	4		
Click to add module	15	[5:30]	SM12\CPU1\RES1\R00018	0x303C	DINT	13		
E Reflective Memory 5576	16	[5:31]	SM12\CPU1\RES1\R00019	0x3040	DINT	2,00594E+09		
Beflective Memory (U)	17	[5:32]	SM12\CPU1\RES1\R00020	0x3044	DINT	2		
HPCi Data (Time class 3)	18	[5:33]	SM12\CPU1\RES1\R00024	0x3048	DINT	1		
Click to add module	19	[5:34]	SM12\CPU1\RES1\R00026	0x304C	DINT	4		
	20	[5:35]	SM12\CPU1\RES1\R00027	0x3050	DINT	13		
Click to add module	21	[5:36]	SM12\CPU1\RES1\R00028	0x3054	DINT	2,003833E+09		
j f ∗ Virtual	22	[5:37]	SM12\CPU1\RES1\R00029	0x3058	DINT	2		
Click to add module	23	[5:38]	SM12\CPU1\RES1\R00030	0x305C	DINT	1		
🛄 🔢 Unmapped	24	15 201		0.0000	EL OAT	0.000040		×
	0	256	512 768 1024 1280	1536 1792 2048	165 (ОК А	kpply Ca	ancel

Example of the ibaLink-SM-128V data module on an ibaFOB-4io card

🔢 iba I/O Manager - C:\Program Files\iba\ibaP	DA\Clien	t\hpcireque	st_IBALINK.io			
🗄 🗋 📸 🚰 🏹 🌗 🔹 Hardware Group	ps Tech	nostring O	utputs 🛛 🛍 🛍			
🗄 🎲 General	HP	Ci Dat	a ibal ink-VME			
	1.1	3133	a baline mil			
Click to add module		nalog II D	igital			
E Cieles add as data			HPCi Symbol	Address	DataType	Actual
ibaFOB-io-ExpressCard/54		Time dagar	1 In Crisymbol	Address	Datatype	Actual
		Time class:	1			-
HPCi Data ibaLink-VME	0	[1:0]	IBA\CPU1\RS1\Rectangle	0x24024	FLOAT	5
🖨 🙆 HPCi Request	1	[1:1]	IBA\CPU1\RS1\Sine	0x24028	FLOAT	0,0314159
HPCi Request TC 4 (0)	2	[1:2]	IBA\CPU1\RS1\Triangle	0x2402C	FLOAT	10,004
HPCi Request TC 1 (1)	3	[1:3]	IBA\CPU1\RS1\Triangle2	0x24030	FLOAT	0,000384615
Click to add module	4	[1:4]	IBA\CPU1\RS1\VarSine	0x24034	FLOAT	0,0129509
Cick to add module	5	[1:5]	IBA\CPU1\RS1\VarSine2	0x24038	FLOAT	0
EtherNet/IP	6	Time class:	4			
Click to add module	6	[0:0]	IBA\CPU1\RS1\us	0x24C24	DINT	0
GCOM	7	[0:1]	IBA\CPU1\RS1\Constant	0x24C28	FLOAT	10
		[0:2]	IBA/CPU1/PS1/ IEC 1131	0x24C2C	DINT	0
		[0:2]	TRA/CPU1/DC1/000000	0x21020	DINT	20.49
	7	[0:3]	10A (CPU1)(S1)(00002	0x2+030	DINT	2010
Click to add module	10	[0:4]	IBA (CPU I (KS I (KUUUU)	UX24C34	DINI	13
Generic TCP	11	[0:5]	IBA (CPU1)RS1/R00004	0x24C38	DINT	2005975040
Click to add module	12	[0:6]	IBA\CPU1\RS1\R00005	0x24C3C	DINT	2
Generic UDP	13	[0:7]	IBA\CPU1\RS1\R00006	0x24C40	DINT	0
Click to add module	14	[0:8]	IBA\CPU1\RS1\R00009	0x24C44	DINT	64
EC 61850 Client	15	[0:9]	IBA\CPU1\RS1\R00010	0x24C48	DINT	13
	16	[0:10]	IBA\CPU1\RS1\R00011	0x24C4C	DINT	2005978880
Click to add module	17	[0:11]	IBA\CPU1\RS1\R00012	0x24C50	DINT	2
LMI-Gocator	18	[0:12]	IBA\CPU1\RS1\R00013	0x24C54	DINT	0
Click to add module	19	[0:13]	IBA\CPU1\RS1\R00014	0x24C58	DINT	1
C Modbus TCP Client	20	[0:14]	IBA\CPU1\BS1\B00015	0x24C5C	FLOAT	0
Click to add module	21	[0:15]	TBA\CPL11\PS1\P00016	0x24060	FLOAT	0
Click to add module	22	[0.10]	IBA (CPUT/KST/K00010	0x24060	FLOAT	100
	22	[0:10]	TDA (CF01) K51 K00004	0.24004	FLOAT	200
Click to add module	23	10:17	IBACPUTRS TROUGS	0x24C68		
OPC UA	0	256	512 768 1024 1280	1536 1792		259 OK Apply Cancel

Example of the ibaLink-VME data module on an ibaFOB-io-ExpressCard

😰 iba I/O Manager							_		×
🗋 💕 🎬 🚽 🌒 🕨 🕶 Hardware	Gro	ups Ou	utputs 🛯 陷 🛍						
⊕ 🎲 General ⊖ 🎧 HPCi Request	ł	IPC	i Data (Time class 1)						
Click to add module	n	v Analo	yg ∬ Digital						
DGM200E		ID	HPCi Symbol	Address	DataType	Actual			+
🖮 🐨 Link 0	0	[3:0]	BUR\CPU1\RS1\CC100.BUR.Analog_2	0x4100	FLOAT				0
HPCi Lite (2)	1	[3:1]	BUR\CPU1\RS1\CC100.BUR.Analog_3	0x4104	FLOAT				0
Link 1	2	[3:2]	BUR\CPU1\RS1\CC100.BUR.Analog_DI	0x4108	DINT				0
	3	[3:3]	BUR\CPU1\RS1\CC100.BUR.Analog_DI_0	0x410C	DINT				0
	4	[3:4]	BUR\CPU1\RS1\CC100.BUR.Analog_DI_1	0x4110	DINT				0
Click to add module	5	[3:5]	BUR\CPU1\RS1\CC100.iba.Analog_1	0x4114	FLOAT				0
	6	[3:6]	BUR\CPU1\RS1\CC100.iba.Analog_2	0x4118	FLOAT				0
	7	[3:7]	BUR\CPU1\RS1\CC100.iba.Analog_DI	0x411C	DINT				0
	8	[3:8]	BUR\CPU1\RS1\RealCounter	0x4120	FLOAT			6,504	462e +06
	9	[3:9]	BUR\CPU1\RS1\Rectangle	0x4124	FLOAT				5
	10	[3:10]	BUR\CPU1\RS1\Sine	0x4128	FLOAT				7,27457
	11	[3:11]	BUR\CPU1\RS1\Triangle	0x412C	FLOAT				29,545
	12	[3:12]	BUR\CPU1\RS1\Triangle2	0x4130	FLOAT				4,10496
	13	[3:13]	BUR\CPU1\RS1\VarSine	0x4134	FLOAT				3,386
	14	[3:14]	BUR\CPU1\RS1\VarSine2	0x4138	FLOAT				1,66237

Example of the DGM200E data module on an DGM 200-E board (via Ethernet)

5.6 HPCi Lite

Even if you are using Request HPCi you can still use HPCi Lite modules, because these modules are part of the DGM200P or DGM200E interface, which is mandatory for using Request HPCi.

With HPCi Lite you can measure the signals that are already available on the CC100/DGM200 bus.

Other documentation



For a more detailed description of the HPCi Lite module please refer to the manual of *ibaPDA-Interface-HPCI-DGM200E*.



6 Diagnostics

6.1 Checking the license

If the "HPCi Request" modules are not available in the signal tree, you can either check in *ibaP-DA* in the I/O Manager under *General - Settings - License* or in the *ibaPDA* service status application if your license is detected properly.

License		license options:	
License no.:	N4725000		
Customer Name:	ites AG - Availar Sisters	Property of Taxa (potential) Property FWASD/TDC	^
License time limit:	255 calendar diya	Request MPAC Request MPAC	
Dongle HW Id:	\$2 10 11 10 32 10 10 11 (Insert23 v212)	Pingunai Mi	
Required EUP date:	11.11.3010	Pequet S21 Permat S2 DF/Phi	
EUP date:	0.05.2021	Property 37 LOP (2)	
EUP trial period:	Sone	Pequet: Senato-TOC Descent Tuto/17	-

In addition to the license for request HPCi, other licenses must also be present, depending on which data path is to be used.

- For reflective memory: ibaPDA-Interface-Reflective-Memory
- For DGM200: ibaPDA-Interface-HPCI-DGM200P

6.2 Log files

If connections to target platforms or clients have been established, all connection-specific actions are logged in a text file. You can open this (current) file and, e.g., scan it for indications of possible connection problems.

The log file can be opened via the button <Open log file>. The button is available in the I/O Manager:

- for many interfaces in the respective interface overview
- for integrated servers (e.g. OPC UA server) in the *Diagnostics* tab.

In the file system on the hard drive, you will find the log files in the program path of the *ibaPDA* server (...\Programs\iba\ibaPDA\Server\Log\). The file names of the log files include the name or abbreviation of the interface type.

Files named interface.txt are always the current log files. Files named Interface_ yyyy_mm_dd_hh_mm_ss.txt are archived log files.

Examples:

- ethernetipLog.txt (log of EtherNet/IP connections)
- AbEthLog.txt (log of Allen-Bradley Ethernet connections)
- OpcUAServerLog.txt (log of OPC UA server connections)

6.3 Connection diagnostics with PING

PING is a system command with which you can check if a certain communication partner can be reached in an IP network.

Open a Windows command prompt.



Enter the command "ping" followed by the IP address of the communication partner and press <ENTER>.

With an existing connection you receive several replies.



Fig. 2: PING successful

With no existing connection you receive error messages.



Fig. 3: PING unsuccessful

6.4 Module diagnostics

You will find a diagnostic help with a tabular display of the actual analog and digital values and the data types on the *Diagnostics* tab of each HPCi Request module.

See chapter **7** Diagnostics, page 27

6.5 Check the Historical Logger

In order to check if the DAS Agent has started on the HPCi Controller and if the *ibaPDA* system is connected you can use the web interface of the HPCi controller.

If connected to the HPCi controller via a network connection open your web browser and type in the URL of the HPCi controller (*http://IP-address*, e.g. http://192.168.120.215).

Another way to start the web interface is by using the P80i. Right click on the controller and select *Online* and then *Web diagnostic*.

	Lock UnLock	
⊕ [⊕ [⊕ [New Resource Import Resource Import Resource from XML	
	Rename Delete	
	Database Analyse Tools	
	Build Build All	
	Online +	Load & Restart
1	Print >	Load & Init
	Export as XML files Import from XML files	Load Built-In Library Load UserDefined Library Load Engine
	Properties	Web diagnostic
	✓ 192.168.123.216 192.168.118.2	Start simulator First boot
		Infos Infos Backup

Opening the web interface by P80i

Under "System", click on the "Historical Logger" link

	Sustem Lood: 1.27% : Application load: 0.75%	
Application Application task list Output Variable Forcing Application Support Pertu list Application Redundancy Plant I/O	System Diagnosis • System Diagnosis • Version Information • Historical Logger • Time and Date • Console History • Advanced System Information • System Update / Restore	
I/O Support		
2013 General Electric Company and/or its affilia	tes. All rights reserved.	4.13.5 (Apr 20 2010

Start page of the controller's web interface

This will open the Historical Logger page.

🗋 get_log_all.htm	>			
← → C 🗋 19	92.168.1	23.216/get_log_all.htm	☆ ≡	
HPCi Controller CPU: 1 of 1; Wdog status: 1 Access Level: 0 - user; Log On Historical Logger				
system	INFO	THU JUN 04 21:27:31 2020	HPC system reboot (V4.13.5 @ APC620-E855)	
CC100 drv	INFO	THU JUN 04 21:27:31 2020	CC100 driver started. (V3.0.4)	
CC100 drv	INFO	THU JUN 04 21:27:31 2020	CC100 driver readyl	
DASAGNT drv	INFO	THU JUN 04 21:27:31 2020	DAS Agent driver V1.3.4 started	
HDMDRV	INFO	THU JUN 04 21:27:31 2020	HDMDRV loaded. Version: 1.10.1	
CC100 drv	INFO	THU JUN 04 21:27:31 2020	DGM200-ring 0 has valid SGM-configuration. (TX: 0,4 chan.,TC4: 100ms)	
CC100 drv	INFO	THU JUN 04 21:27:31 2020	DGM200 in slot 1 successfully installed for ring 01	
HDMDRV	INFO	THU JUN 04 21:27:32 2020	Event log initialized. (Entries: 5000, Size: 200032 Bytes)	
HDMDRV	INFO	THU JUN 04 21:27:32 2020	Access log initialized. (Entries: 5000, Size: 320032 Bytes)	
HDMDRV	INFO	THU JUN 04 21:27:32 2020	Remote storage initialized. (Not yet configured)	
RS1t000	OK	THU JUN 04 21:27:36 2020	Engine successfully started	
RS1t010	OK	THU JUN 04 21:27:36 2020	Engine successfully started	
RS1t020	OK	THU JUN 04 21:27:36 2020	Engine successfully started	
script_play	OK	THU JUN 04 21:27:36 2020	Restarting resource RS1	
script_play	INFO	THU JUN 04 21:27:36 2020	Appli subscribed ok RS1	
DASAGNT drv	INFO	THU JUN 04 21:27:42 2020	DAS Agent 0 is ready / waiting for connection. (1/4 interfaces,3 resources)	
DASAGNT drv	INFO	THU JUN 04 21:29:33 2020	Data acquisition system connected now. (IP: 192.168.123.61)	

Historical Logger shows start of the DAS Agent driver and ibaPDA connection

Here, you'll find, among others, entries with messages from the DAS Agent driver (DASAGNT drv).



Check that the DAS Agent driver is started. Also observe the message "Data acquisition system connected now". The IP address mentioned here should be the IP address of the associated *ibaPDA* server.



7 Support and contact

Support

Phone:	+49 911 97282-14

Fax: +49 911 97282-33

Email: support@iba-ag.com

Note



If you need support for software products, please state the license number or the CodeMeter container number (WIBU dongle). For hardware products, please have the serial number of the device ready.

Contact

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