

» MSMST Evaluation Kit «



MSMST Evaluation Kit

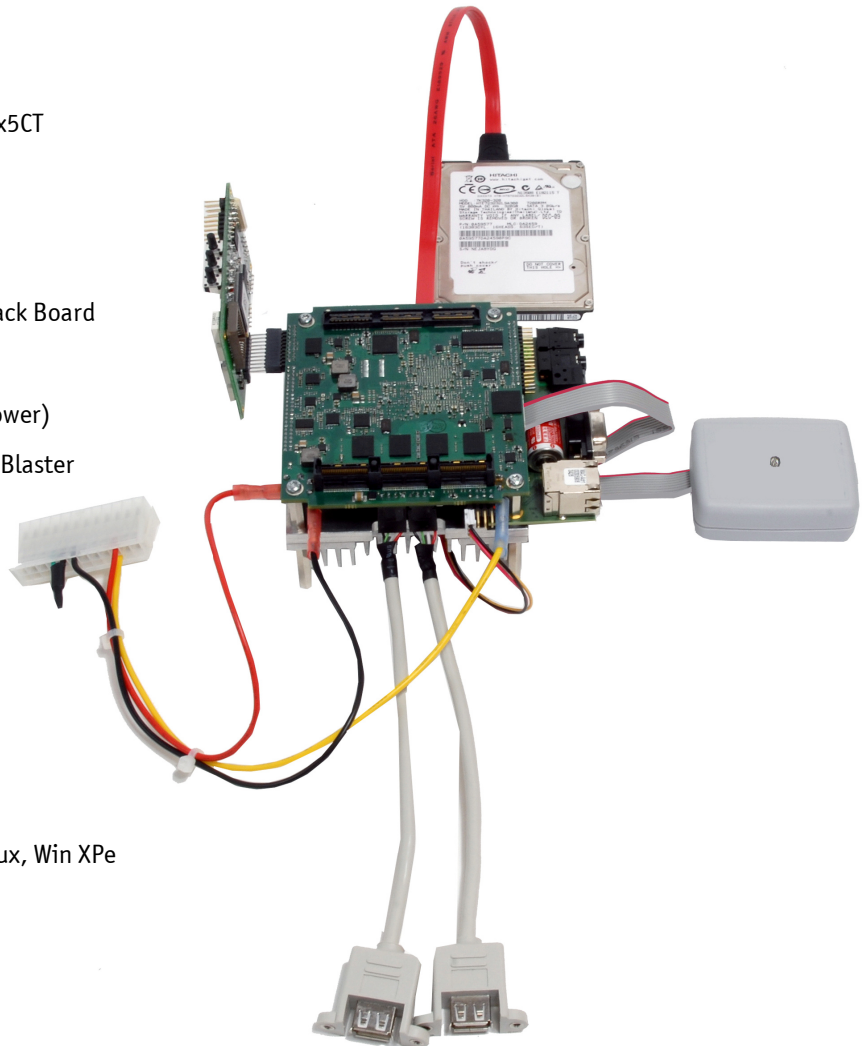
Document Revision 104

Ready to Run Package

Product	Ordering Information	Quantity
MSMST Evaluation Kit with Mediaboard DVI	802318	
MSMST Evaluation Kit with Mediaboard VGA	802319	
MicroSpace MSMST Board	802310	1
MSMST Mediaboard DVI	802150	1
MSMST Mediaboard VGA	802151	1
MSMST Heat Spreader Kit	802315	1
MSM-PC104 Active Cooler	802316	1
HSMC Debug and Loopback Adapter		1
HSMC Breakout Adapter		1
Terasic USB-Blaster JTAG Programmer		1
ATX Power Supply		1
2.5" SATA Hard Disk		1
Screw Set		1
MSMST Cable Kit		1

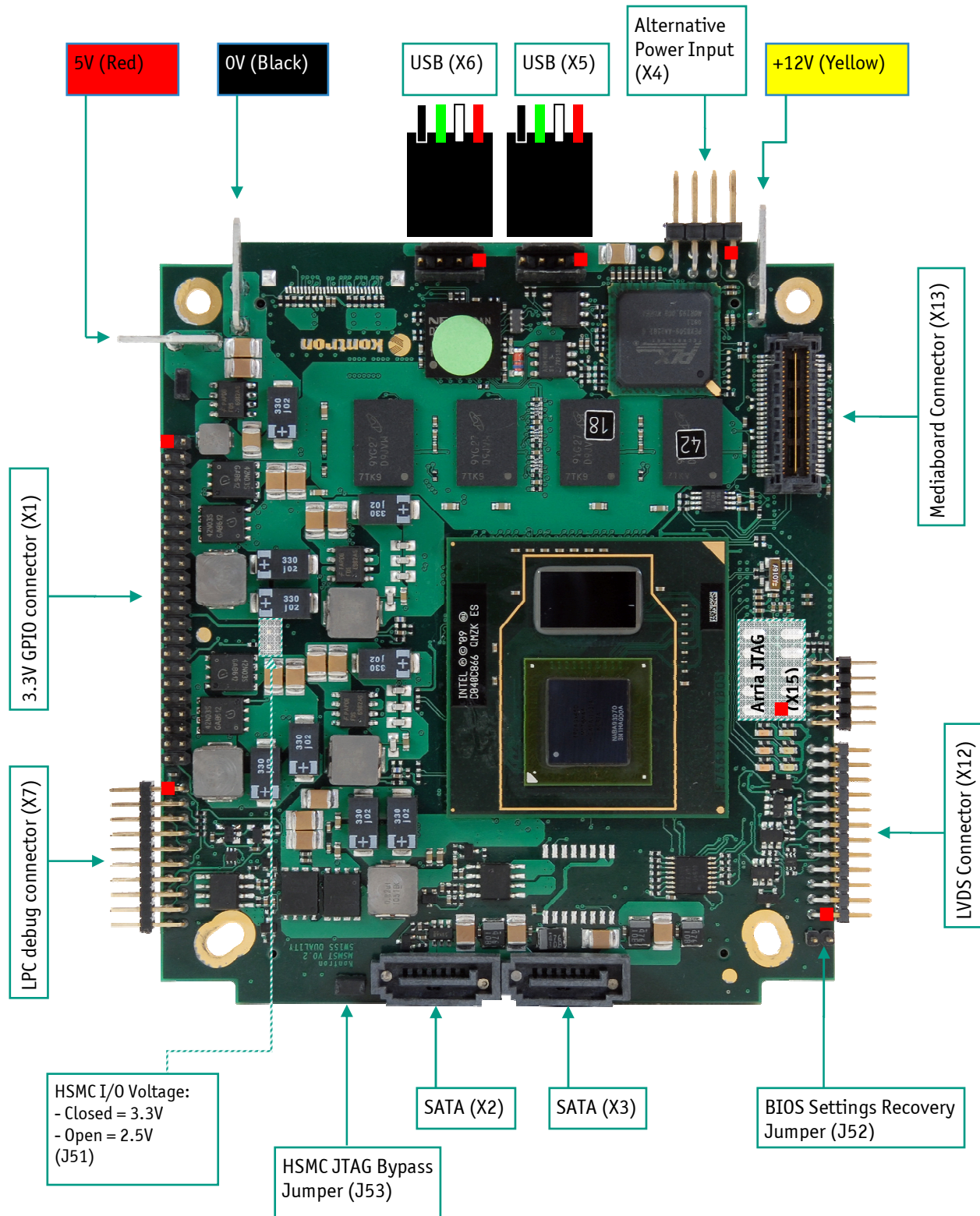
Included:

- » MicroSpace MSMST
PCIe/104 Board with Intel Atom E6x5CT
- » Mediaboard DVI or VGA with
Gbit Ethernet and Sound Port
- » Super I/O Board
- » HSMC Break Out, Debug and Loopback Board
- » ATX Power Supply
- » Cable Set (2x SATA, 2x USB, PS2, Power)
- » USB JTAG Programmer Terasic USB-Blaster
- » 2.5" 250GB SATA Hard Disk
- » Dual Boot System
 - » Win XPe (Evaluation Version)
 - » Linux Fedora
- » Board Support Packages:
 - » Win XP and Win XPe
 - » Linux
 - » VxWorks
- » GPIO Test Software with GUI for Linux, Win XPe
- » Documentation



Component Connection Diagram

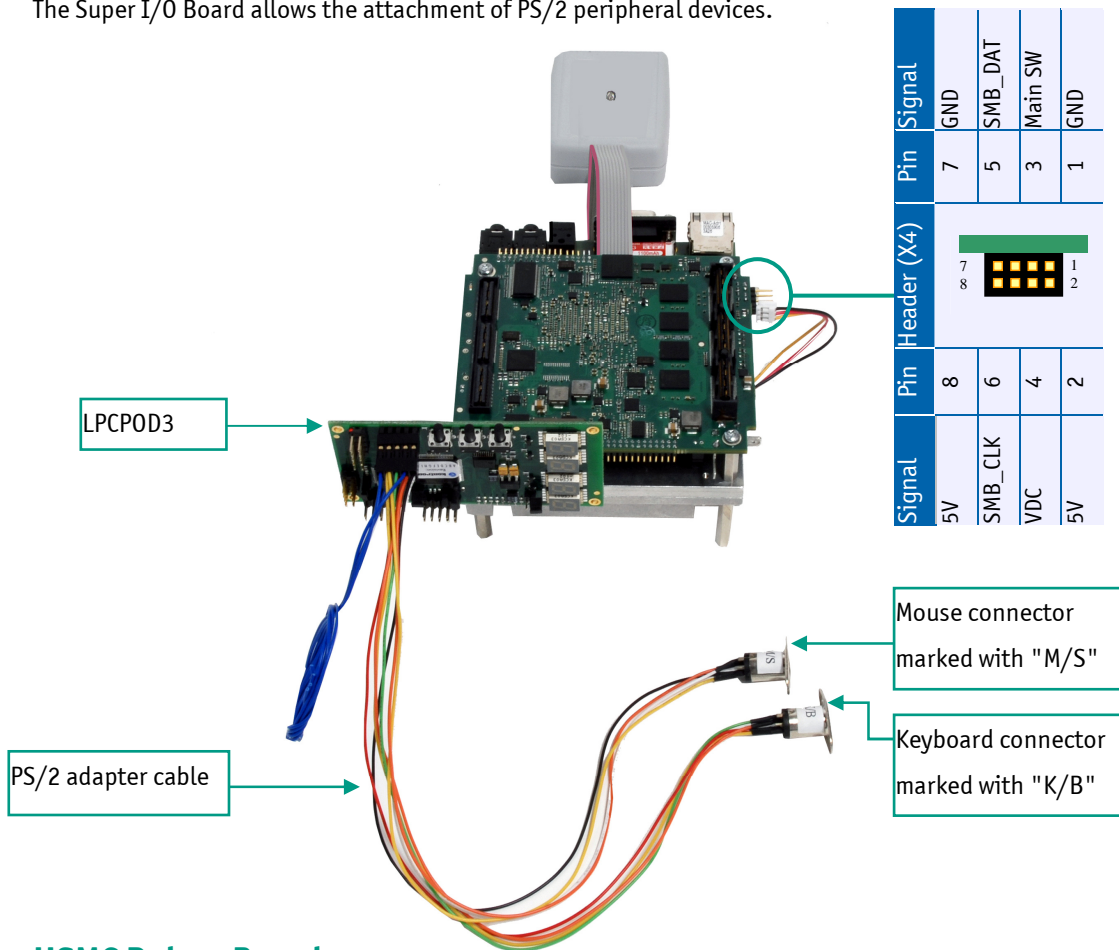
Pin 1s are marked with a red square



Periphery

POST Code Display with Super I/O

The Super I/O Board allows the attachment of PS/2 peripheral devices.

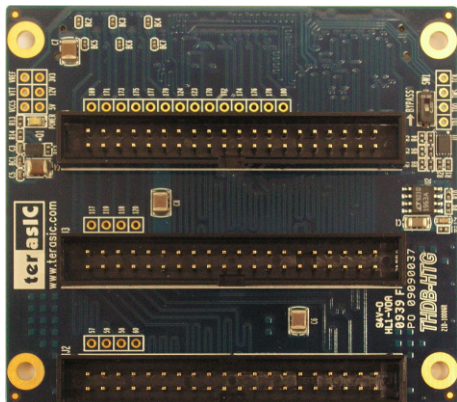


HSMC Debug Boards

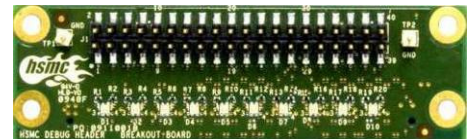
The evaluation kit includes three HSMC cards for debugging purposes. Please follow the links of the Terasic Technologies website for additional information:

<http://www.terasic.com.tw/cgi-bin/page/archive.pl?Language=English&CategoryNo=67&No=322>

<http://www.terasic.com.tw/cgi-bin/page/archive.pl?Language=English&CategoryNo=78&No=495>



Terasic GPIO-HSTC breakout board



Terasic HSMC debug header



Terasic HSMC loopback connector

FPGA Development

Altera Software

Altera Quartus II Subscription Edition software Version 10.1 or newer is required for developing MSMST FPGA. The free Web Edition does not support the required Arria II GX FPGA (EP2AGXE6XXFPGA).

The Subscription Edition needs a license to operate. A free 30 day evaluation period (without programming file support) can be used after installation of the software. To get an unlimited 60 day evaluation version or to order the software, contact your Altera sales representative. Please follow the link of the Altera website for additional information:

<https://www.altera.com/download/software/quartus-ii-se>.

Please make sure that you have selected Arria II GX device family support during installation.

JTAG Adapter

The provided Terasic Blaster is compatible with the Altera USB Blaster. No additional software is required to use it with the Altera software tools. Please follow the Terasic Technologies website link for more information:

<http://www.terasic.com.tw/cgi-bin/page/archive.pl?Language=English&CategoryNo=&No=46>

Operating System Support

The MSMST is an x86 compatible computer and supports a wide range of operating systems. Kontron provides BSPs for Microsoft Windows XP, Microsoft Windows XP Embedded, Fedora Linux and VxWorks.

Technical Support

Technicians and engineers from Kontron AG and/or its subsidiaries are available for technical support. We are committed to making our products easy to use and will help you to use our products in your systems.

For technical support, please consult our technical support department:

Web: <http://support.kcc-ag.ch>

Tel.: +41 (0) 32 681-5848

Fax: +41 (0) 32 681-5801

For the latest product documentation, utilities, drivers, additional tools and software please consult our website:

Web: <http://kontron.com>

Development Kit Features

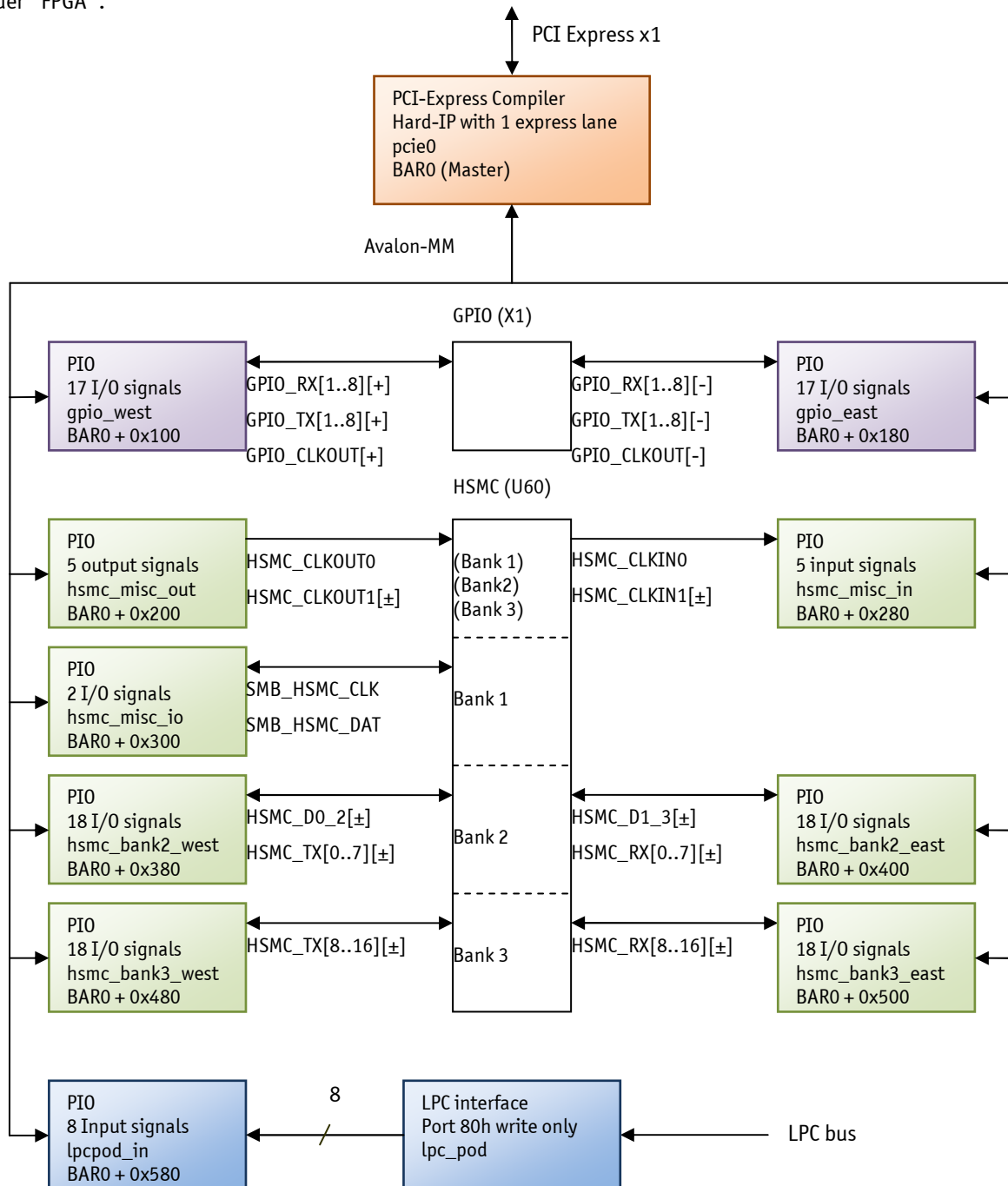
Preloaded Hard Disk

The Development Kit contains a SATA hard disk with a pre-installed Fedora Core 14 Linux distribution and a Windows XP Embedded evaluation version. All necessary hardware drivers (including accelerated video support) for the MSMST are pre-installed. On the common "MSMST" partition, all the necessary documentation, driver installation files, BSP, Tools and included FPGA source files can be found. Please note that USB 3.0 is not actually supported by all operating systems.

Sata Harddisk			
Partition 1: NTFS	Partition 2: Ext 4	Partition 3: LVM	Partition 4: FAT32
XP Embedded	Linux	Linux	MSMST Documentation Drivers Tools BIOS FPGA

Preloaded FPGA Image

The MSMST contains an 8MB SPI flash for firmware storage. The flash is shared between the system BIOS (2MB), chipset microcode (a few kB) and FPGA image (about 6MB). A preloaded image contains basic GPIO functionality for all external "low speed" I/O connections. The Quartus II project files are stored on the "MSMST" partition in the folder "FPGA".

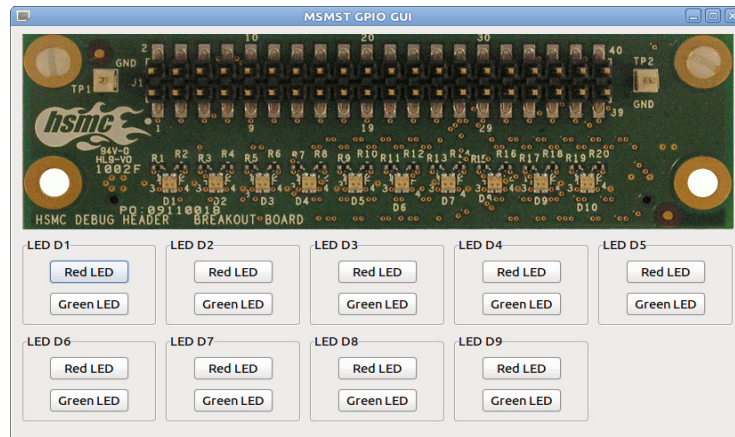


Block diagram of the preloaded MSMST FPGA system

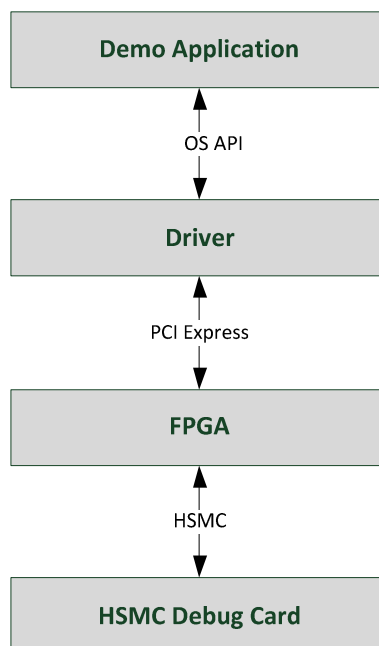
GPIO Demo Application

The evaluation kit contains a demonstration program for using GPIOs in the FPGA system. The Windows version of the program is written in C/C++ (Borland C++ builder) and uses the KCC Int15 driver as interface. The Linux is written in a GTK GUI and uses a custom written PCI driver for the FPGA. All sources are included.

To test the GPIO, attach the included HSMC debug card to the HSMC connector and use the link "MSMST GPIO GUI" on the desktop to start the application.



MSMST GPIO GUI running under Linux



Communication of the GUI with the FPGA system

Appendix A: Document Revision History

Revision	Date	Edited by	Changes
100	01 Mar 2011	DIP	Initial version.
101	17 Mar 2011	BAJ	Corrected language and pictures.
102	22 Mar 2011	WAS	Format and grammar checked.
103	12 Apr 2011	BAJ	Changed ordering information.
104	21 Mar 2012	WAS	Page size to Kontron CI. Title photo replaced. Block diagram expanded. Cabled photos corrected.

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