



## Features

The design of a finished product

- Metal Enclosure
- Customizable Logo
- Built-in Power Supply

The flexibility of a module

- 32-Bit Freescale ColdFire 147 MHz CPU
- 8 MB SDRAM
- 4 MB Flash Memory
- SD/MMC Flash Card Support
- 10/100 Ethernet
- 3 UARTs
- Address and Data Bus
- I2C
- SPI

The power of NetBurner's Development Suite

- NetBurner Eclipse IDE
- uC/OS RTOS
- ANSI C/C++ Compiler and Linker
- Deployment Tools
- Example Programs
- Flash File System
- HTTP Web Server
- TCP/IP Stack
- E-Mail
- FTP
- PPP

## The NetBurner PK70 Embedded Control Product Kit

### Overview

The PK70 combines the design of a finished product, the flexibility of a network module, and the power of the NetBurner development suite into a ready to use platform for use in both prototype or production. The primary advantage of the PK70 is that the electronics are in a professional grade enclosure with a power supply.

### How to Use the PK70 in Your Product

The PK70 can be customized to add additional functionality with one of the standard NetBurner Personality Blades, or you can create your own. The Personality Blades are installed inside the PK70 enclosure. For example, the NBPBKM-100CR Multi-I/O Personality Blade includes analog-to-digital, digital-to-analog and general purpose I/O.

### The Complete Embedded Software Solution

Begin communicating over 10/100 Mb/s Ethernet and Serial ports via TCP/IP, UDP, and serial protocols with the NetBurner PK70 Development Kit (NNDK-PK70EX-KIT). The development kit features web (HTTP) and file (FTP) servers. For additional storage capability, the PK70 controller has a built in card slot to which you can connect SD/MMC flash cards for embedded logging applications requiring additional storage. Also included is a flash file system that provides increased reliability for data logging.

### High-Performance Hardware for Real-Time Applications

The Netburner PK70 Embedded Controller features a 147Mhz Freescale MCF5270 processor for real-time applications requiring significant control processing for file management, connectivity, data buffering, user interface, and signal processing. It is designed to consume less power with 7 to 24VDC supply inputs that deliver isolated power to the PK70 chassis / blade boards.



## Specifications

### Processor

32-bit Freescale ColdFire 5270 running at 147MHz

### Software Development

NetBurner PK70 Development Kit includes PK70 Device, TCP/IP stack, Web Server, real-time operating system (RTOS), ANSI C/C++ compiler and linker, assembler, graphical debugger, NetBurner Eclipse integrated development environment (IDE), code update, configuration, and deployment tools.

### Network Interface

10/100 BaseT with RJ-45 connector

### Network Protocols Supported

Please reference NetBurner Software Datasheet for a complete list of the protocols included with this development kit ([www.NetBurner.com](http://www.NetBurner.com)).

### Serial Protocols Supported

RS-232 up to 115,200 baud. Additional baud rates and higher serial speeds possible with blade boards.

### LEDs

Link, Speed/Data, Power

### Physical Characteristics

Dimensions: 4.4" x 3.9" x 1.2"

### Power

12V@150mA

DC Input Voltage: 7-24V.

+5V, +3.3V and raw input voltage are available for use by blade boards

### Note:

The PK70 current is exclusive of the Personality Blade Board.

### Environmental Operating Temperature

0° to 70°

## Ordering Information

E-mail: [sales@netburner.com](mailto:sales@netburner.com)

Online Store: [www.NetBurnerStore.com](http://www.NetBurnerStore.com)

Telephone: 1-800-695-6828

## Part Numbers

NetBurner PK70 Development Kit  
(Embedded Control Product Kit)

*P/N: NNDK-NBPK70EX-KIT*

Kit includes all the hardware and software you need to customize the included NetBurner PK70 device.

### Note:

The kit does NOT include a NetBurner Personality Blade Board.



NetBurner PK70 Embedded Control Device

*P/N: NBPK70EX-100CR*

Includes processor board and power board.

## NetBurner PK70 Personality Blades



Multi-I/O Blade Board

*P/N: NBPKBM-100CR*

Personality Blade board with eight 12-bit A/D, two 16-bit D/A, 16 digital I/O.



Programmable Xilinx Digital I/O Blade Board

*P/N: NBPKBD-100CR*

Personality Blade board with 32 channels of digital I/O and a Xilinx CPLD.



Quad UART Blade Board

*P/N: NBPKBU-100CR*

Personality Blade board with 4 UARTS.



Prototype Blade Board

*P/N: NBPKBP-100CR*

Personality Blade board with a prototype area, 40-pin dual row right angle header, and DB-37 female connector.

NetBurner Personality Blade Development Program

*P/N: See Personality Blade Development Program Datasheet*

NetBurner has created a prototype and production design service to design and build Personality Blades at a very low cost, with free Non-Recurring Engineering (NRE) hardware design costs for production orders.

## The Internal PK70 Personality Blade Connector

The PK70 device has an internal connector which enables you to quickly and easily add additional functionality with one of our standard NetBurner Personality Blades, or a blade board you create on your own. Table 1 provides descriptions of pin function of internal NetBurner Personality Blade interface connector. Refer to Figure 4 for the appropriate connector pin assignments.

Table 1: Internal NetBurner Personality Blade Board Interface Connector Signal Descriptions <sup>(1)</sup>

Pin	Function	GPIO Port	Description	Pin	Function	Alt. Func.	GPIO Port	Description
1	VCC3.3V		Available power 3.3V@750mA	22	3VA4			Data Bus <sup>2</sup> - Address 4 <sup>4</sup>
2	GND		Ground	23	*CS3			Data Bus <sup>2</sup> - Chip Select 3
3	R/W		Data Bus <sup>2</sup> - Read / Write	24	*CS2			Data Bus <sup>2</sup> - Chip Select 2
4	*OE		Data Bus <sup>2</sup> - Output Enable	25	SDA	U1RX	PFECI2C1	Data Bus <sup>2</sup> - I <sup>2</sup> C Data Line <sup>5</sup> or UART 1 Receive <sup>6</sup>
5	*RSTI		Processor Reset Input	26	SCL	U1TX	PFECI2C0	Data Bus <sup>2</sup> - I <sup>2</sup> C Clock Line <sup>5</sup> or UART 1 Transmit <sup>6</sup>
6	*TA	PBUSCTL6	Data Bus <sup>2</sup> - Transfer Acknowledge	27	TIN1	DTOUT1	PTIMER3	DMA Timer 1 In or Out
7	*BUFCLK		Buffer Clock Out (CLKOUT-73.728 Mhz) <sup>3</sup>	+		U1RTS		UART1 Request To Send <sup>6</sup>
8	*RSTO		Processor Reset Output	28	DTOUT3	QSPICS3		Timer Out 3 or QSPI Chip Select 3 <sup>7</sup>
9	DB25		Data Bus <sup>2</sup> - Data 25	29	*IRQ1		PIRQ1	External Interrupt 1 <sup>7</sup>
10	DB24		Data Bus <sup>2</sup> - Data 24	30	*IRQ3		PIRQ3	External Interrupt 3 <sup>7</sup>
11	DB27		Data Bus <sup>2</sup> - Data 27	31	*IRQ7		PIRQ7	External Interrupt 7 <sup>7</sup>
12	DB26		Data Bus <sup>2</sup> - Data 26	32	*QSPI_CS0		PQSPI3	QSPI Chip Select 0 <sup>8</sup>
13	DB29		Data Bus <sup>2</sup> - Data 29	33	SPI_IN		PQSPI1	QSPI <sup>8</sup>
14	DB28		Data Bus <sup>2</sup> - Data 28	34	SPI_DOUT		PQSPI0	QSPI Data Out <sup>8</sup>
15	DB31		Data Bus <sup>2</sup> - Data 31	35	SPI_CLK		PQSPI2	QSPI <sup>8</sup>
16	DB30		Data Bus <sup>2</sup> - Data 30	36	TIN2	DTOUT2	PTIMER5	DMA Timer 2 In/Out
17	3VA1		Data Bus <sup>2</sup> - Address 1 <sup>4</sup>	37	VCC5V			Available Power 5V@1A
18	3VA0		Data Bus <sup>2</sup> - Address 0 <sup>4</sup>	38	GND			Ground
19	3VA3		Data Bus <sup>2</sup> - Address 3 <sup>4</sup>	39	VCCRAW			DC Input Voltage Power <sup>9</sup>
20	3VA2		Data Bus <sup>2</sup> - Address 2 <sup>4</sup>	40	GND			Ground
21	*CS1	PCS1	Data Bus <sup>2</sup> - Chip Select 1					

Note:

1. Asterisk (\*) denotes active low.
2. Data bus signals are 5V tolerant.
3. The PK70 CLKOUT signal is 1/2 the system frequency of 147.456 MHz.
4. Address lines (3VAx) are 3.3V only.
5. If using I<sup>2</sup>C, the blade board must add pull-up resistors to SDA/SCL.
6. When using UART 1, pins 26 and 27 need to be configured as inputs.
7. IRQ's pulled up to 3.3V with 4.7K resistor.
8. No pull-ups/down on QSPI signals.
9. Same voltage rail that is used to power the PK device externally.

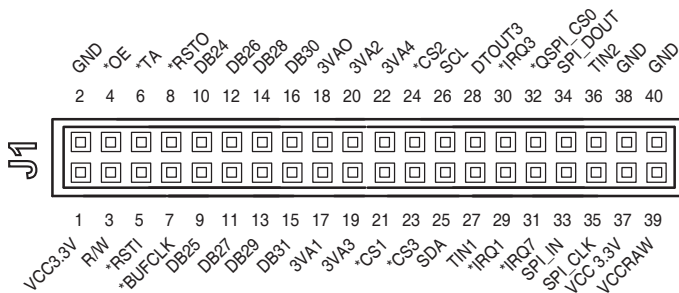


Figure 1: Internal Personality Blade Interface Connector Signal Assignments\*

Note:  
Pin 1 is located next to the J1 label and is the pin closest to the PCB edge.

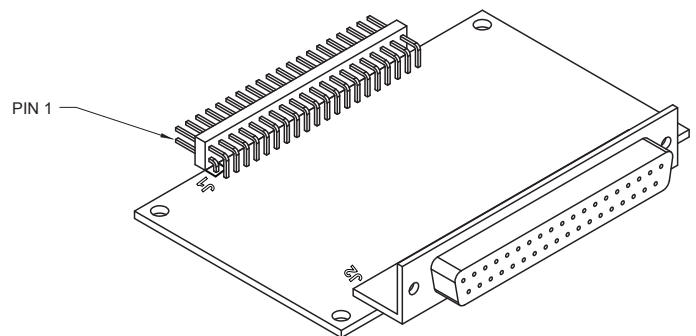


Figure 2: Personality Blade Board Pin 1\*

Revision 1.2, October 14, 2008. © 2008 NetBurner, Inc. Specifications are subject to change without notice. Every effort has been made to ensure all information is correct, but NetBurner, Inc. is not responsible for inadvertent errors. Freescale(tm) and the Freescale logo are trademarks of Freescale Semiconductor, Inc. All other product or service names are the property of their respective owners. (c) Freescale Semiconductor, Inc. 2008.