



Think Embedded. Think Arcom.

Arcom is a pioneer in the design and manufacture of embedded processor and I/O boards for industrial and OEM applications. They are perfect for anyone wanting advanced processing or display capabilities for their next generation of products, where 24/7 reliability and guaranteed longevity-of-supply are paramount.

As well as generous on-board features, most can also be expanded with additional functionality such as isolated digital and analogue I/O via the PC/104 expansion bus. This, coupled with out-of-the-box operating system support and Arcom's comprehensive backup and 3-year warranty, all assures a carefree embedded solution.



## Kick-start your embedded project in 3 easy steps!

### Step 1: Pick an embedded processor board...

Technical Features	1 PEGASUS	2 VIPER	3 VULCAN	4 SBC-GX1	5 APOLLO
Architecture	x86	ARM / XScale	ARM / XScale	x86	x86
CPU	AMD SC520	Intel PXA255	Intel IXP425	AMD Geode GX1	Intel Pentium M
Maths Co-Processor	✓			✓	✓
CPU Clock Speed	133MHz	400MHz	533MHz	300MHz	1.6GHz
RAM	32MB	64MB	64MB	256MB	512MB
Battery Backed SRAM	128kB	256kB	256kB		
Onboard Flash	16MB	32MB	32MB	16MB	
CompactFlash (storage)		✓	✓	✓	✓
CompactFlash I/O (CF+)		✓	✓		✓
PS2 Keyboard / Mouse	✓			✓	✓
Floppy Disk Drive	✓			✓	✓
IDE	✓			✓	✓
Parallel Port (2)	✓			✓	✓
RS232	3	4	3	4	4
RS422 / RS485	1	1	1	1	1
Max. Baud Rate	115.2k	230.4k	921.6k	115.2k	921.6k
LAN Interfaces (100 Base-T)	1	1	2	1	2
USB 1.1		2		2	
USB 2.0			4		8
FireWire (IEEE 1394a)					2
Audio Out / Mic. In		✓		✓	✓
Video Controllers		1		1	2
Video Output		TFT / STN (1)		CRT / TFT	CRT / LVDS (3)
Max. Resolution		640 x 480		1280 x 1024	2048 x 1536
Real Time Clock (RTC)	✓	✓	✓	✓	✓
Watchdog Timer	✓	✓	✓	✓	✓
PC/104 Expansion	✓	✓	✓	✓	
PCI Expansion				✓	✓
Tamper Detect Input			✓		✓
General Purpose I/O (2)		16	16	10	10
PC Bus		✓			✓
Power Management		✓			✓
Input Voltage	5V DC	5V DC	5V DC	5V DC	ATX
Max. Power Consumption	4W	1.9W	3.5W	7W	12.3 - 36W
Cooling	Passive	Passive	Passive	Passive	Passive / Active
Operational Temp.	-20 to +70°C	-20 to +70°C	-20 to +70°C	-20 to +60°C	-20 to +65°C
Form Factor	PC/104	PC/104	PC/104	EBX	EBX
Dimensions	90 x 96mm	90 x 96mm	90 x 96mm	146 x 203mm	146 x 203mm
Operating System Supported					
Embedded Linux	✓	✓	✓	✓	
Windows CE		✓			
Windows XP Embedded				✓	✓

- (1) Conversion from onboard TFT output to CRT or LVDS is possible via an external module.  
 (2) The Parallel Port can be used to provide an additional 8 x TTL General Purpose digital I/O.  
 (3) DVI and TV-out can be provided via additional plug in modules.

**Note:** 3 year warranty is operated by Arcom.  
 Please telephone 01223 411200 or e-mail: [repairs@arcom.com](mailto:repairs@arcom.com) for warranty or technical support queries.



The low-cost yet robust design of the **PEGASUS** lends itself to a great many embedded processor board projects. Its connectivity makes it suited to any number of data acquisition, monitoring/control or communication tasks, whereas its powerful 133MHz Pentium-class CPU guarantees your application is never lacking in performance.



The **VIPER** is an ultra low-power embedded processor board with almost every conceivable feature condensed into just 90 x 96mm. Using Intel's powerful 400MHz XScale CPU, the VIPER provides ample performance for most embedded applications. Its compact size coupled with comprehensive range of features, mean it can be used to create anything from a touch-screen HMI (Human Machine Interface), to a remote data acquisition node, to a wireless MP3 player!



The **VULCAN** would make the ideal foundation to any high performance embedded communications device. It uses the same Intel 533MHz XScale CPU as found in many commercial gateways & routers to provide near unparalleled networking capabilities. Offering other such features as USB 2.0 and RS232 ports, and a CompactFlash (CF+) interface for adding more storage or even Wi-Fi or Bluetooth functionality, all combine to make the VULCAN a very versatile embedded processor board.



The **SBC-GX1** is perfect if you have a modest graphical application which needs integrating into your next product. It incorporates all the features you would expect on a full desktop PC, but consumes only 7W and uses no moving parts. Its very low-profile design is also ideal for installing into constrained locations with limited ventilation. In short, the SBC-GX1 makes migrating your Windows or Linux knowledge onto a true embedded processor board easier than you ever thought possible!



The **APOLLO** provides the performance required by even the most demanding of embedded applications. On speed alone it out-guns many desktop PC's, but when you also consider its incredible set of features, diminutive size and surprisingly low power consumption, there's not a lot it doesn't offer! The APOLLO uses Intel's latest Pentium M CPU to provide astonishing performance (Pentium M 1.6GHz ≈ Pentium 4 2.4GHz) combined with previously unachievable low power consumption. This all makes migrating high-end software traditionally consigned to a desktop PC, onto a powerful yet cool-running embedded processor board, very straight forward indeed.



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## Step 2: Choose your operating system...

NB: Due to their unique hardware requirements, not every operating system is available for every embedded processor board.

### Windows XP Embedded

Windows XP Embedded is a componentised version of Windows XP Professional, specifically designed with features to suit operating from solid-state Flash memory, as opposed to a mechanical hard drive. Compared with Windows XP Professional, Windows XP Embedded provides a compact operating system with enhanced reliability and a reduced licence cost. It's ideal if you already have an application written for a desktop PC, or if your project relies on third-party hardware where only Windows XP drivers exist. Windows XP Embedded allows you to utilise the full power of Windows XP Professional in a more focused form, to rapidly create advanced and reliable embedded devices, without the learning curve often associated with a new operating system.

### Windows CE 5.0

Windows CE is the choice for those requiring a small, reliable 'real-time' operating system, yet one which can still provide a rich set of multi-media features. Windows CE is perfect for creating optimised, cost-sensitive devices, when the developer has full control over the application code to be deployed. Windows CE requires different application executables to those intended for standard 'desktop' Windows, although the same Microsoft Visual Studio .NET Professional development tools can be used to create them. Supporting the .NET Compact Framework, Windows CE allows you to rapidly develop your device application in a familiar environment using either embedded Visual C/C++, Visual Basic .NET or Visual C# .NET.

### Embedded Linux

Embedded Linux is a size optimised version of Linux based on a 2.6 kernel distribution designed specifically for embedded devices. Its value lies in the ability to rapidly create a wide range of embedded devices, with the added benefit of an almost unlimited amount of open-source software and resources. Embedded Linux has been used in devices such as mobile phones, PDAs, media players and many other consumer electronics products, although its main forte is in the creation of robust network oriented communication or data acquisition devices. The accepted Linux GUN C/C++ software tools are included in the Development Kit, ensuring application development is simple and consistent with desktop Linux. Its highly stable, secure and most of all configurable nature, mean the only real limitation of embedded Linux is in the developer's ability.



APOLLO Development Kit with optional TFT display shown

## Step 3: Get yourself a Development Kit...

If you're after an embedded processor board for your next project, then an Arcom Development Kit should be your first purchase. A Development Kit is a one-stop solution, providing your chosen operating system pre-installed onto your chosen embedded processor board, allowing you to rapidly develop your device and reduce your product's time-to-market. **The Development Kit includes the processor board, touchscreen TFT display (optional), operating system licence, power supply, associated cables, easy to follow documentation and a CD-ROM containing additional technical information and supporting source-code.** Using the utilities provided, you can then simply clone all your development work onto any future embedded processor boards required. Purchasing a Development Kit also entitles you to unlimited after-sales technical support from Arcom, ensuring your foray into the embedded processor world is carefree.

Type	Description	Manufactures Part No.	Stock No.	Price
1	PEGASUS Embedded Linux Development Kit	7000-11316-101-206	xxx-xxxx	£395
2	VIPER Embedded Linux Development Kit with 5.5" Q-VGA TFT Touchscreen	7000-12130-102-401	xxx-xxxx	£845
2	VIPER Windows CE 5.0 Development Kit with 5.5" Q-VGA TFT Touchscreen	7000-13919-201-101	xxx-xxxx	£845
3	VULCAN Embedded Linux Development Kit	7000-13162-001-401	xxx-xxxx	£595
4	SBC-6X1 Embedded Linux Development Kit	7000-10871-201-401	xxx-xxxx	£495
4	SBC-6X1 XP Embedded Development Kit	7000-11170-201-103	xxx-xxxx	£595
4	SBC-6X1 XP Embedded Development Kit with 6.5" VGA TFT Touchscreen	7000-11170-202-103	xxx-xxxx	£995
5	APOLLO XP Embedded Development Kit	7000-13750-101-002	xxx-xxxx	£945

### Embedded Processor Bare Boards

These are intended for production runs, when additional processor boards are required further to that supplied in the Development Kit. They come with no manual or required development tools, as these are included with the initial Development Kit.

Type	Description	Manufactures Part No.	Stock No.	Price 1 / 6+
1	PEGASUS Embedded Linux 'ready'	6070-50638-001-105	xxx-xxxx	£195 / £xxx
2	VIPER Embedded Linux 'ready'	6070-50655-003-203	xxx-xxxx	£295 / £xxx
2	VIPER Windows CE 5.0 'ready'	6070-50655-002-203	xxx-xxxx	£315 / £xxx
3	VULCAN Embedded Linux 'ready'	6070-50670-002-104	xxx-xxxx	£295 / £xxx
4	SBC-6X1 Embedded Linux 'ready'	6080-50643-002-104	xxx-xxxx	£295 / £xxx
4	SBC-6X1 Windows XP Embedded 'ready'	6080-50643-001-104	xxx-xxxx	£495 / £xxx
5	APOLLO Windows XP Embedded 'ready'	6080-50644-002-104	xxx-xxxx	£870 / £xxx

### Embedded Processor Cable Kits

These cable kits breakout the embedded processor boards functionality to industry standard connectors. They are not required with Development Kit purchases.

Type	Description	Manufacturer Part No.	Stock No.	Price 1 / 6+
1	PEGASUS Cable Kit	7000-13926-001-101	xxx-xxxx	£19 / £xx
2	VIPER Cable Kit	7000-13927-001-101	xxx-xxxx	£29 / £xx
3	VULCAN Cable Kit	7000-13928-001-101	xxx-xxxx	£19 / £xx
4	SBC-6X1 Cable Kit	7000-13929-001-101	xxx-xxxx	£24 / £xx
5	APOLLO Cable Kit	7000-13743-001-101	xxx-xxxx	£49 / £xx



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One of the great aspects about the PC/104 standard, is its versatility. The PC/104 expansion bus allows for extra functionality to be added to the embedded processor board by simply plugging in additional I/O modules. Up to eight PC/104 I/O modules can be securely bolted together to create an embedded system of unsurpassed reliability and robustness.

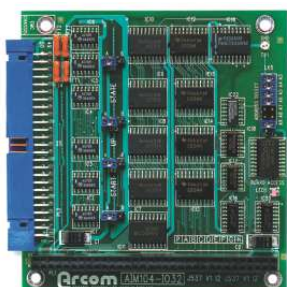
Operating system drivers and example source-code for all these I/O modules are included in the Development Kits for the Arcom embedded processor boards. Alternatively, for use with a non Arcom product, the drivers can be downloaded from [www.arcom.co.uk](http://www.arcom.co.uk)

## Enhance your embedded processor board's functionality...



### 1 Digital Input & Relay Output Module

- 8 x isolated digital inputs
- 10 - 30V input switching voltage
- 1000V input-to-output isolation
- 8 x relays. NC and NO contacts at I/O connector
- 1A / 60V switching capability per relay



### 2 TTL Digital I/O Module

- 32 x TTL compatible digital I/O channels
- Bit-programmable for inputs or outputs
- Outputs configurable on power-up or reset
- Sink capability 24mA. Source current 500µA
- Module access LED



### 3 Digital Input Module

- 16 x opto-isolated digital inputs
- 10 - 30V input switching voltage
- Reverse protection diodes on all inputs
- 10ms input debounce filters (link-selectable)
- 1500V input-to-output isolation



### 4 Digital Output Module

- 16 x opto-isolated Darlington digital outputs
- 30V max load operating voltage
- 40kHz max output frequency
- Protection catch diodes on all outputs
- 1500V input-to-output isolation



### 5 Digital Input & ADC Module

- 8 x isolated digital inputs
- 10 - 30V input switching voltage
- 8/16 (differential/single-ended) 12-bit analogue inputs
- 500Hz max. acquisition rate
- 1000V input-to-output isolation



### 6 Digital Input & ADC/DAC Module

- 8 x isolated digital inputs. 10 - 30V input switching
- 8/16 (differential/single-ended) 12-bit analogue inputs
- 500Hz max. acquisition rate
- 2 x 12-bit isolated analogue outputs
- 10µsec settling time to 12-bit accuracy



### 7 CAN Interface Module

- Single channel Philips SJA1000 CAN controller
- Supports CAN ISO11898 (CAN 1.1 and 2.0a)
- Up to 1Mbit baud rate
- 3 x bi-colour diagnostic LEDs
- 128byte serial EEPROM for parameter storage



### 8 Multi RS232 Module

- 8 x RS232 ports
- Supports rates up to 115.2k baud
- Supports shared interrupts (IRQs)
- Full modem control lines for each port
- Rx and Tx activity LEDs for each port

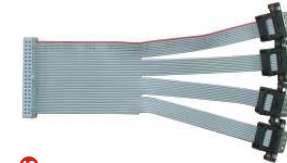
Type	Description	COMMs	Inputs	Outputs	ADC	DAC	Cable	Manufacturer Part No.	Stock No.	Price 1 / 6+
1	Digital Input & Relay Output Module		8 x Isolated	8 x Relay			9	6070-50540-001-103	xxx-xxxx	£90 / £xx
2	TTL Digital I/O Module		32 x TTL*	32 x TTL*			9	6070-50537-001-103	xxx-xxxx	£75 / £xx
3	Digital Input Module		16 x Isolated				9	6070-50536-002-103	xxx-xxxx	£75 / £xx
4	Digital Output Module			16 x Isolated			12	6070-50542-001-103	xxx-xxxx	£75 / £xx
5	Digital Input & ADC Module		8 x Isolated		8/16 x 12-bit		9	6070-50541-002-103	xxx-xxxx	£125 / £xx
6	Digital Input & ADC/DAC Module		8 x Isolated		8/16 x 12-bit	2 x 12-bit	9	6070-50541-001-103	xxx-xxxx	£175 / £xx
7	CAN Interface Module	1 x CANbus					11	6070-50552-002-201	xxx-xxxx	£90 / £xx
8	Multi RS232 Module	8 x RS232					2 x 10	6070-50685-001-101	xxx-xxxx	£95 / £xx

\* 32 is the combined total of inputs and outputs available

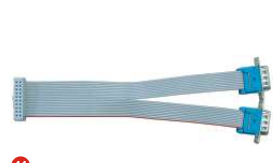
## PC/104 I/O Module Breakout Cables



9



10



11



12

Type	Description	Manufacturer Part No.	Stock No.	Price 1 / 6+
9	50-way IDC to 2 x 25-way D-types (male)	7000-50581-001-101	xxx-xxxx	£14 / £xx
10	40-way IDC to 4 x 9-way D-types (male)	7000-13477-000-000	xxx-xxxx	£19 / £xx
11	20-way IDC to 2 x 9-way D-types (male)	7000-10631-000-000	xxx-xxxx	£9 / £x
12	26-way IDC to 1 x 25-way D-types (male)	2040-09861-000-000	xxx-xxxx	£4 / £x

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Most standard PC's are unsuitable for monitoring or control applications, due to their lack of external I/O. This range of PCI expansion cards offer a range of features which make interfacing your PC to the 'real-world' very simple. With a selection of isolated digital and analogue inputs and outputs, as well as relay outputs and counter-timers, should guarantee there is a card here to suit any monitoring, control or data acquisition requirement.

## Adding 'real-world' I/O to your PC couldn't be easier.

- All I/O boards come with Windows 2000/NT/XP drivers and example Visual C/C++ and Visual Basic source code
- CE-compliant board designs
- Integrated signal conditioning
- Single industry standard 50-way D-type I/O connector
- 3 year warranty



### 1 Digital Input & ADC/DAC Card (Differential)

- 8 x differential 12-bit analogue inputs
- 0 to  $\pm 5V$ , 0 to  $\pm 10V$ , bi-polar selectable input ranges
- 100kHz max sample rate (across channels)
- 2 x 12-bit isolated DAC outputs
- 0 to  $\pm 5V$ , 0 to  $\pm 10V$ , bi-polar selectable output ranges
- 100kHz max conversion rate (across channels)
- 16 x TTL digital I/O channels
- 3 x Timers (1 x ADC, 1 x interrupt, 1 x general purpose)



### 2 Digital Input & ADC/DAC Card (Single-Ended)

- 8 x single-ended 12-bit analogue inputs
- 0 to  $\pm 5V$ , 0 to  $\pm 10V$ , bi-polar selectable input ranges
- 100kHz max sample rate (across channels)
- 2 x 12-bit isolated DAC outputs
- 0 to  $\pm 5V$ , 0 to  $\pm 10V$ , bi-polar selectable output ranges
- 100kHz max conversion rate (across channels)
- 16 x TTL digital I/O channels
- 3 x Timers (1 x ADC, 1 x interrupt, 1 x general purpose)



### 3 TTL Digital I/O Card

- 40 x buffered bi-direction TTL digital I/O channels
- Open-collector outputs
- Max sink current 24mA
- Interrupt operation (IRQ)
- Interrupt generation Timer: 0 (500kHz to 6.5sec)
- 2 x 16-bit counter-timers
- Board access LED and User LED



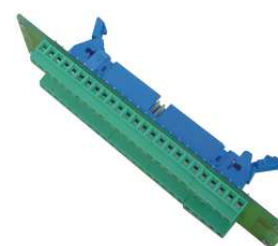
### 4 Digital Input & Relay Output Card

- 8 x opto-isolated digital inputs
- 10 - 30V input switching voltage
- 8 x changeover relays
- NC and NO contacts at I/O connector
- 1A / 48V switching capability per relay



### 5 PCI I/O Card Cable Assembly

- 50-way ribbon cable
- 2m long with 50-way D-plug connector at one end for connection to the Arcom range of PCI bus I/O cards
- Supplied 50-way ribbon cable header should be fitted by the user and allows the terminated cable length to be set to suit the application



### 6 Screw Terminal I/O Breakout Board

- Provides easy screw terminal access to the PCI I/O card's functionality
- Ideal for testing and prototype use
- For use in conjunction with PCI I/O Card Cable Assembly

Type	Description	Inputs	Outputs	ADC	DAC	Counter/Timer	Manufacturer Part No.	Stock No.	Price 1 / 6+
1	Digital Input & ADC/DAC Module (Differential)	8 x Isolated		8 x 12-bit	2 x 12-bit	3 x 16-bit	6090-50605-001-101	xxx-xxxx	£290 / £xxx
2	Digital Input & ADC/DAC Module (Single-Ended)	8 x Isolated		16 x 12-bit	2 x 12-bit	3 x 16-bit	6090-50605-002-101	xxx-xxxx	£290 / £xxx
3	TTL Digital I/O Module	40 x TTL*	40 x TTL*			2 x 16-bit	6090-50591-001-102	xxx-xxxx	£95 / £xx
4	Digital Input & Relay Output Module	8 x Isolated	8 x Relay				6090-50594-001-102	xxx-xxxx	£105 / £xxx
5	PCI I/O Card Cable Assembly						6201-99999-004-000	xxx-xxxx	£14 / £xx
6	Screw Terminal I/O Breakout Board						6060-00215-001-101	xxx-xxxx	£45 / £xx

\* 40 is the combined total of inputs and outputs available

## 1U Low Power High Performance Industrial PC



### 1 1U 19" Rack Mount Industrial PC

- Cool running Pentium M 1.6GHz (2.4+GHz Pentium 4 performance)
- Rugged design
- 512MB DDR RAM
- 2 x PCI slots
- Dual Ethernet
- Front panel access to USB2 & FireWire ports
- Standard I/O connections from rear panel
- Customisable LCD status display and User LED's
- Just 14" (350mm) deep
- Lid tamper detect switch
- Min. 80GB HDD & CDR/DVD drive
- Auto-ranging 90 - 264V AC
- Only 40W typical power consumption!

Type	Description	Manufacturer Part No.	Stock No.	Price 1 / 6+
1	1U 19" Rack Mount Industrial PC	7000-13763-001-101	xxx-xxxx	£895 / £xxx

Note: 3 year warranty is operated by Arcom.  
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