

The Digicool interface board supports a full implementation of the French military communication bus DIGIBUS.

It fully complies with the DIGIBUS GAM-T101 standard.

The Digicool board implements a redundant bus. It can be used in ground application such as test benches and maintenance tools or involved in embedded airborne systems.

- ◆ Full implementation of communication bus DIGIBUS (GAM T101)
- ◆ Support simultaneously the 3 main functions of DIGIBUS:
  - Bus controller
  - Terminal equipments
  - Monitor (Spy)
- ◆ IRIG-B Datation 1  $\mu$ s resolution
- ◆ PCI 32-bit bus interface
- ◆ Conduction Cooled PMC Format
- ◆ Softwares: XP, Linux , C librairy, Seven 32/64

### Functions:

The PMC-Digicool board can support simultaneously the 3 main functions of Digibus:

**Bus controller:** the board rules the traffic on the bus by emitting data on the "procedure" communication line.

**Terminal equipment:** the board can act as one or several terminal equipments listening the commands on procedure communication line and emitting or receiving the data of the data communication line.

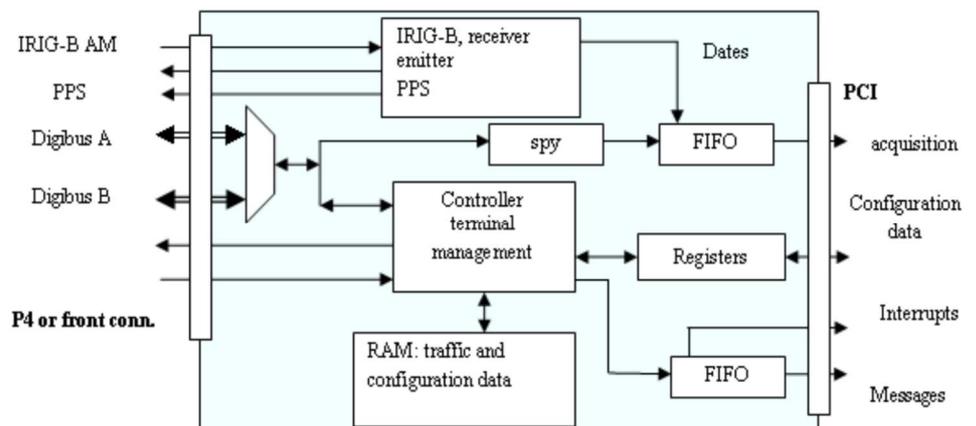
**Monitor (spy):** the board acquires and records the complete data traffic on the bus.

### Available version:

A simplified version of the board restricted to the monitor version is available.

The board exists in conduction cooled version with no front connector: input-output use the lines P4 connector of the PMC standard. When air cooling is available, it is also possible to access the board via a front panel connector.

### Board organization:



### APPLICATIONS

FUNCTIONS	
Bus Controller	User application describes the bus traffic by tables, copied into the board memory. Traffic timing can be based on internal clock or external events.
Terminal equipments	User software declares which terminals are managed by the board and which commands are processed by each terminal. The software can read received data at any moment. Up to 32 terminals can be implemented by the board.
Monitor	Every message on the redundant bus is captured, time stamped and saved in processor main memory. Status bits define data characteristics: parity errors, echoes, presence of "V" bit etc.
Message trigger	The board can be configured for detection of a given message pattern which generates a hardware signal (synchro trigger). Simultaneously the same message is marked by a specific flag in acquisition flow. This useful feature allows synchronization of external acquisition equipment with the computer software.
Time stamping	The PMC-Digicool board can receive an IRIG B compliant synchronization signal. Its internal date is then synchronized with the external world. The Digicool board can also generate an IRIG B signal and acts as a master for other IRIG B compatible equipment.
Error generation	It is possible to generate traffic with Digibus standard violations: parity errors, missing V bit or echoes.
Error detection	Each received byte comes with a full description of its characteristics: parity, echoes, V bit etc.
General purpose I/O	One general purpose digital input and one digital output are available for user's specific needs.
Other possibilities	The board includes a Power PC 405 processor not used in the functions described above but which can be programmed for specific real time needs.
INPUT/OUTPUT (ALL TTL)	
Outputs	Top synchro: triggered on a given message General purpose output
Input	Top cycle: triggers a new cycle in controller operation One general purpose input.
IRIG B	
	IRIG B Supports B122 format: 1 kHz base Supports B122 format: 1 kHz base modulation Amplitude Modulation 1 time input. 1 time output. 1 PPS (heartbeat) output.
DIGIBUS	
	Fully GAM-T-101 compliant (redundant bus mode)
FORMAT	
	PMC "Conduction cooled" (CCPMC). Uses primary and secondary thermal interfaces. PCI interface conforms to PCI standard 2.1 (32 bits, 33 MHz with 3.3 or 5 V signalling).
MTBF	
	MIL HDBK 217 FN2, Method 1 case 1 28250 hours, 50°C
POWER SUPPLY	
	3.3 V, 5 V, +12 V, -12 V. < 10 W
CONNECTORS	
	PMC/Pn4: Digibus, binary signals in unprotected TTL interface. Front panel: Honda HDR-E50 supports Digibus; IRIG_B, 1 x RS422 & 2 x TTL signals, cables should use Honda Connectors HDR-E50 M S G1
ENVIRONMENT	
Operating Temperature	- 20°C to + 70°C
Non operating	- 40°C ; + 85°C
Vibrations	10-75 Hz increasing 6 dB/octave 75 Hz - 250 Hz W0 = 0.04 g/Hz 250 Kz - 2000 Hz decreasing -3 dN/octave

SOFTWARE	
Driver	Windows XP, Seven, LINUX (please ask for supported distribution list), VxWorks 6.4
User support library	Application interface in C and sample user applications in C source code are provided.
Other operating systems	Please ask if your RTOS is supported

*\*Specifications given for 25°C*

**ACCESSORIES**

**Front panel**



The front panel is delivered with each board. It can be mounted when the board is installed in an air cooled system with front connections. It supports a 50 pin female Honda HDR connector. Besides DIGIBUS and IRIG B the connector supports configurable inputs and output: two TTL signals and one RS422 signal in each direction. These signals can be affected by software to events such as message detection, cycle top or user's signal.

**Single bus cable/Redundant bus cable**

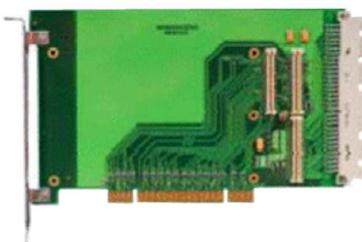


Single bus cable (WF-609): it is a female SUBD9 adapter for a single bus  
 Redundant bus Cable(WF-611): it is a female SUBD9 adapter for a redundant bus.

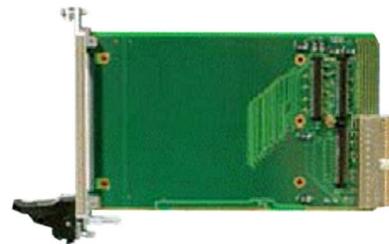
**PCI ou cPCI carriers**

A PMC-DIGICOOL board can be installed into a PCI or 3U compact PCI slot with a carrier:

**PMC-PORT-PCI**



**PMC-PORT-CPCI**



**ORDERING INFORMATION**

<b>PMC-DIGICOOL</b>	Full functions (formerly PMC-DGC)
<b>PMC-DIGICOOL-S</b>	Restricted to monitor version (formerly PMC-DGCSPY)
ACCESSORIES	
<b>WF-609</b>	SubD 9 adapter cable for bus A.
<b>WF-611</b>	SubD 9 adapter cable for bus A and B (redundant bus).
<b>PMC-PORT-PCI</b>	Carrier PCI/PMC.
<b>PMC-PORT-CPCI</b>	Carrier cPCI/PMC.

*Specifications are subject to change. Please, verify the latest specifications prior order.*

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