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Find the *OMRON / Delta Tau PMAC2-PCI Ultralite* at our website: ***Click HERE***

DELTA TAU
Data Systems Inc.

NEW IDEAS IN MOTION CONTROL...

TURBO PMAC2 PCI ULTRALITE
32 Axis
Part Number: 4-3726xx-2xxx-xx00xx

ABOUT TURBO PMAC2 PCI ULTRALITE



The Turbo PMAC2 PCI Ultralite is a member of the Turbo PMAC family of boards optimized for interface to the system through the MACRO ring and therefore does not contain on-board axis interface circuitry (which is what makes it Ultralite). It can command up to 32 axes through a MACRO ring. It can also support up to 32 channels of off-board axis interface circuitry through its expansion port, connected to ACC-24P or ACC-24P2 boards.

The Turbo PMAC2 PCI Ultralite is a full-sized PCI-bus expansion card. The PC can communicate to PMAC through the PCI slot or through a RS-232 or RS-422 serial port if standalone operation (i.e. without a PC) is desired.

FEATURES

HARDWARE FEATURES

- 80 MHz DSP56303 CPU (120 MHz PMAC equivalent)
- 128k x 24 SRAM compiled/assembled program memory (5C0)
- 128k x 24 SRAM user data memory (5C0)
- 1M x 8 flash memory for user backup & firmware (5C0)
- Latest released firmware version
- RS-232/422 serial interface, PCI bus interface

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- One 16-node MACRO interface IC
- MACRO ring circuitry (without connectors; see Opts. A & C) (No on-board axis interface circuitry)
- Two channels supplemental interface circuitry, each including:
  1)2-channel differential/single-ended encoder input
  2)One output command signal set, configurable as pulse-and-direction or PWM top-and-bottom pair
  3)Display, MACRO, muxed I/O, direct I/O interface ports
- PID/notch/feedforward servo algorithms
- Extended pole-placement servo algorithms

SOFTWARE FEATURES

Trajectory Generation Features

- Linear interpolation mode with S-curve accel/decel
- Circular interpolation mode with S-curve accel/decel
- Rapid point-to-point move mode
- Cubic B-spline interpolation mode
- Cubic Hermite-spline (PVT) interpolation mode
- Automatic move-until-trigger functions with hardware capture
- Altered destination on the fly
- Interactive jog moves
- Multi-move lookahead for velocity and acceleration limiting

Servo Features

- Standard digital PID feedback filter
- Velocity, acceleration, and friction feedforward
- 2nd-order notch/low-pass filter
- Gains changeable at any time
- Programmable input, integrator, and output limits
- Alternate 35-term “pole-placement” servo filter
- Alternate user-written high-level “Open Servo” algorithms

Commutation Features

- Sinusoidal commutation of AC servo motors
- Vector control of AC induction motors
- Digital current-loop closure with direct PWM output (PMAC2)

Compensation Features

- Position compensation tables (1D & 2D)
- Torque compensation tables
- Backlash compensation
- Tool radius compensation

Safety Features

- Hardware and software overtravel limits
- Amplifier enable/fault handshaking
- Following error limits
- Integrated current limit

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- Encoder loss detection (some versions)
- Watchdog timer
- Program and communications checksums

Computational Features

- Real-time multi-tasking operating system
- 48-bit floating-point math for user programs
- Trigonometric and transcendental functions
- Automatic type-matching of different variable types
- User-defined pointer variables to any registers

Feedback sensor types that can be processed

- Digital quadrature encoders
- Sinusoidal encoders, interferometers
- Resolvers
- Potentiometers
- LVDTs, RVDTs
- Parallel-format encoders, interferometers
- MLDTs
- Serial absolute encoders (e.g. SSI)

Coordination and Master/Slave Features

- User-defined coordinate systems for automatic coordination of axes
- Separate coordinate systems for independent motion of axes
- Multi-motor axis support (e.g. gantries)

Motion Program Features

- High-level programming language
- Automatic sequenced execution of moves
- Calculations and I/O synchronous to motion
- Axes programmed in user engineering units
- Motion values as constants or expressions
- Automatic coordination of multiple axes
- Ability to execute G-code programs

PLC Program Features

- Execution asynchronous to programmed motion
- I/O control as in hardware PLC
- Executive functions for standalone applications
- Safety and status monitoring
- Servo gain scheduling
- Data reporting functions
- Access to all registers in controller

OPTIONS

Communication Options

- OPT-2 - On-board 32Kx16 Dual Ported RAM
- OPT-9T - Auxiliary RS-232 serial port

Processor and Firmware Options

- OPT-10 - Firmware version specification
- OPT-5C0 - Default CPU-speed/memory config: 80MHz DSP56303 CPU
- OPT-5C3 - 80MHz DSP56303 CPU
- OPT-5E0 - 160MHz DSP56311 CPU (128Kx24 internal memory)
- OPT-5E3 - 160MHz DSP56311 CPU (128Kx24 internal memory)

Base Board Options

- OPT-12 - 8-channel on-board 12-bit A/D converter
- OPT-12A - Additional 8-channel on-board 12-bit A/D converter
- OPT-16A - 32Kx24 SRAM battery-backed parameter memory.
- OPT-18A - Electronic Board Identification Number Module
- OPT-8A - High-accuracy clock crystal (+/-15ppm)

Connector Options

- OPT-A - MACRO-ring fiber optic interface connector
- OPT-C - MACRO-ring RJ-45 electrical interface connector

Macro Node Expansion

- OPT-1U1 - Additional 16-Node MACRO Interface
- OPT-1U2 - Second additional MACRO interface IC
- OPT-1U3 - Third additional MACRO interface IC

ACCESSORY

Axis Breakout Boards

- ACC-8DCE - 4 channel fully shielded breakout board/CE Certified PC Board

Axis Interface Boards

- ACC-8A - Analog Interface with Sub-Count Interpolator Option

Digital I/O Boards

- ACC-11P - Isolated 24-Input/24-Output Expansion Board

- ACC-14P - PCI Format TTL 48/96 Input/Output Board
- ACC-34AA - 32 Inputs and 32 Outputs Optically Isolated, I/O board
- ACC-34B - 32 Inputs and 32 Outputs for Opto-22
- ACC-35A - Thumbwheel Port Differential Line Driver, Local
- ACC-35B - Thumbwheel Port Differential Line Driver, Receiver
- ACC-36P - 16-Channel 12 Bit A/D Converter Board
- ACC-76 - 32 Inputs and 32 Outputs for SNAP I/O from Opto-22
- ACC-77 - 64 Inputs module for SNAP I/O from Opto-22
- ACC-11M - MACRO-based 24 input/24 output digital I/O card, 12–24 VDC levels

Power Supply

- ACC-2A - Power Supply - +/-15V 0.4 A & +5V HBAA-40W
- ACC-2B - Power Supply - +/-15V (0.8 A) & +5V HBAA-40W

MACRO Accessories

- ACC-65M - Demo: 24 In / 24 Out Self-protected 12-24VDC I/O Device
- ACC-68M - Sinking 24-Inputs/24-Outputs MACRO Device
- ACC-82M - Yaskawa SIGMA II MACRO Interface

Cable Accessories

- ACC-21G - Cable 50-pin card-edge to 50-pin IDC header
- ACC-3D - 3-meter (10 ft) RS-232 or RS-422 flat cable, DB-25 to IDC-26
- ACC-3E - Additional Connectors for Daisychaining
- ACC-3L - 3-Meter (10 ft) serial cable RS-232 flat cable, DB-9 female to IDC-10 female
- CABFBR-1 - 20 cm Terminated Glass Optical Fiber Cable

- CABFBR-2 - 1.5m (5ft),Terminated Glass Optical Fiber Cable
- CABFBR-3 - 5m (15ft),Terminated Glass Optical Fiber Cable
- CABFBR-4 - 8m (28ft), Terminated Glass Optical Fiber Cable
- CABFBR-5 - Custom length terminated glass optical fiber cable

Miscellaneous Accessories

- ACC-1LS - Lithium Battery
- ACC-3E - Additional Connectors for Daisychaining
- ACC-40 - On-site 2-Day Field Service and Training

Display Accessories

- ACC-12A - 40x2 LCD Backlit Display
- ACC-12C1 - Vacuum Fluorescent Display Unit
- ACC-12D - Display Port Transmitter

Macro Peripherals

- ACC-65M - Demo: 24 In / 24 Out Self-protected 12-24VDC I/O Device
- ACC-68M - Sinking 24-Inputs/24-Outputs MACRO Device
- ACC-82M - Yaskawa SIGMA II MACRO Interface

Warranty

- ACC-22 - Extended Two Year Warranty

SOFTWARE

Development Software

PMAC Executive Pro2 Suite

CNC Software

PMAC-NC Pro2 Runtime

Tools and Libraries

Power PMAC Communication library

Tools and Libraries

PMAC HMI Pro2 Designer

CNC Software

PMAC-NC Pro2 Designer

Tools and Libraries

PMAC HMI Pro2 Runtime

Development Software

Power PMAC IDE

MANUALS

Turbo PMAC User Manual - User Manual

Turbo PMAC2 PCI Ultralite - Hardware Reference Manual

Flex CPU - Hardware Reference Manual

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