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Find the *OMRON / Delta Tau Turbo Clipper* at our website: *Click HERE*

DELTA TAU

TURBO PMAC CLIPPER™
Turbo PMAC2-Eth-Lite Controller

Product Description

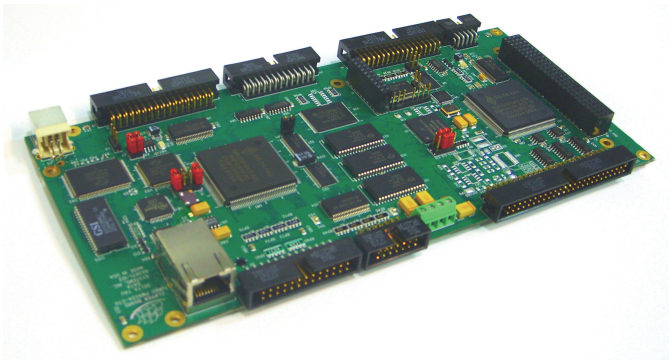
PRODUCT DESCRIPTION:
The Turbo ClipperTM controller (Turbo PMAC2-Eth-Lite) from Delta Tau provides a very powerful, but compact and cost-effective, multi-axis controller solution for cost sensitive applications.

The Turbo Clipper is a full featured multi-axis controller with Ethernet (100 Mbit/sec), USB (2.0), and RS232 communication ports and built in I/O. It offers a full Turbo PMAC2-CPU and provides a minimum of four axes of servo or stepper control, a full compliment of motor I/O flags (5 in, 2 out), and 32-digital I/O points.

The Turbo Clipper can be used completely standalone, with occasional commands from a host computer or PLC, or with real-time high-speed streaming of data over the Ethernet link. The Clipper can supply the most demanding of applications at a fraction of the cost previously possible.

For applications ranging from high speed indexing to the most demanding of complex robotics, the Turbo Clipper is the new vehicle of choice.

Turbo PMAC2-ETH-Lite Controller
108mm x 229mm (4.25" x 9.0")



BASE SPECIFICATIONS:
The standard Turbo PMAC2-ETH-Lite Controller provides:

- 4 axes of simultaneous servo / stepper control, expandable with piggyback accessories to 8 axes and beyond
- All axes independent or coordinated in any combination
- Multitasking of up to 16 motion programs and 64 asynchronous PLC programs
- Communications: Ethernet, USB, & RS-232
- Easy-to-use, high-level programming language128K X 24 SRAM user data memory (programs, variables, tables)
- Linear, circular, rapid, B-spline, Hermite-spline interpolation modes
- Embedded forward and inverse kinematics routines for Non-Cartesian geometries
- True S-curve accel/decel for jerk-limited profiles
- PID/notch/feedforward servo algorithms
- Dynamic multi-move lookahead for robust acceleration control and efficient cornering/contouring
- Coordinate system translation and rotation, 2D and 3D
- Tool-radius compensation
- Hardware position capture and compare circuits for high precision
- On-board G-code execution
- Optional Dual Port Ram for fast NC program execution

OPTIONS:

CPU & Memory Options

- 5C3: - 512Kx24 SRAM, 4Mx8 flash
- 5F3: 240 MHZ CPU, 4Mx8 flash

On-board

- Option 12: Analog to Digital Converters, 2 channels, ±10V, 12 bit
- Option 15F:Modbus TCP Master/Slave communications

PC-104 plug in

- ACC 1P: 4-channels (5-8) board
- ACC-8ES: 4-channel dual 18-bit true-DAC output board
- ACC-8FS: 4-channel direct-PWM output board
- ACC-8TS: Hi-res analog input interface
- ACC-51S: 2/4-channel high-resolution encoder interpolator board

Other (Cabled)

- ACC-34AA: 32 inputs & 32 outputs, optically isolated
- ACC-34B: 32 inputs & 32 outputs, Opto-22
- ACC-65ETH: ModBus , 24 inputs & 24 outputs, isolated
- ACC-8D Option 7: Resolver to Digital Converter

DELTA TAU

Specifications and Features

Hardware Features

80 MHz DSP56303 Turbo PMAC CPU
256k x 24 user SRAM
1M x 8 flash memory for user backup & firmware
Latest released firmware version
RS-232 serial interface
100 Mbps Ethernet interface
480 Mbps USB 2.0 interface
4 channels axis-interface circuitry, each including:
- 12-bit +10V analog output
- Pulse-&-direction digital outputs
- 3-channel differential/single-ended encoder input
- 5 input flags, 2 output flags
- UVW TTL-level "hall" inputs

50-pin IDC header for amplifier/encoder interface
34-pin IDC header for flag interface
4-pin Molex connector for power supply input (5V, +/-12V, GND)
- (+/-12V only required for analog outputs or inputs)

PID/notch/feedforward servo algorithms
32 general-purpose TTL-level I/O points, direction selectable by byte:
- 16-point multiplexer port compatible with Delta Tau I/O accessories
- 16-point "opto" port compatible with Opto-22-style modules

"Handwheel" port with 2 each:
- Quadrature encoder inputs
- Pulse (PFM or PWM) output pairs

Dual Ported Ram *

Motion Features

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

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

Cartesian geometries
- Electronic gearing (no programming required)
- Electronic cams with programmable profiles

* Optional

Motion Features (continued)

Safety
- Hardware and software overtravel limits
- Amplifier enable/fault handshaking
- Following error limits
- Integrated current limit
- Watchdog timer
- Program and communications checksums

Computational
- 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

Coordination and Master/Slave
- User-defined coordinate systems for auto coordination of axes
- Separate coordinate systems for independent motion of axes
- Multi-motor axis support (e.g. gantries)
- Dynamic axis transformations (e.g. offsets, rotations, mirroring)
- User-written forward and inverse-kinematic algorithms for non-Motion Program
- High-level programming language for up to 32 axes of control
- 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 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
- ModBus I/O control *

Support Feedback types / devices

- Digital quadrature encoders
- Sinusoidal encoders, interferometers *
- Resolvers *
- Potentiometers *
- LVDT's, RVDT's *
- Parallel-format encoders, interferometers *
- MLDT's *

Support Motor types include

- Brushless (AC/DC)
- DC Brush
- Hydraulic Servo
- Induction
- Linear
- Piezzo
- Stepper (open / closed loop)
- Voice Coil

* Optional

Turbo PMAC Clipper Ordering Information

4 - 3 8 7 1 A B - 2 0 0 F - 0 H 0 J 0 0

CPU / Memory / Firmware Options

A & B

C0 - OPT-5C0: standard
C3 - OPT-5C3: 512Kx24 SRAM, 4Mx8 flash
F3 - OPT-5F3: 240 MHz CPU, 4Mx8 flash

Communications Options

F

4 - No Options
5 - OPT-2: Dual Ported RAM
6 - OPT-15F: ModBus communications
7 - OPT-2 & OPT-15F: DP Ram & ModBus

Other Options

H

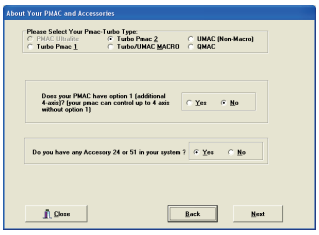
0 - No Options
1 - OPT-12: A/D x 2 (12 bit), D/A (12 bit)

J

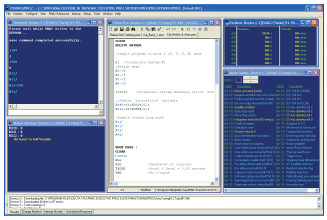
0 - No Options
1 - OPT-11A: PWM Laser Control

Tools and Software

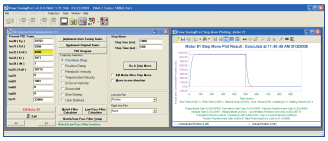
The latest software versions are available on-line at www.deltatau.com for a 30 day free trial



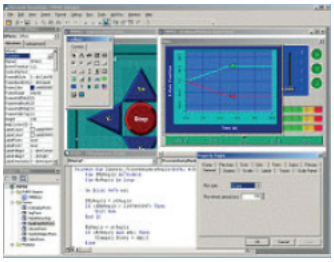
Turbo Setup Pro2 provides wizards that make it easy to setup your Turbo Clipper



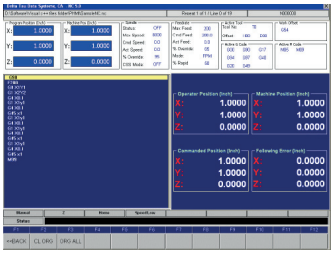
Use the PMAC Executive (**PEWIN**) to: jog motors, issue commands, monitor status & positions, download motion & PLC programs



Tuning Pro2 - use the **Auto-Tuner** to quickly get servo motors moving. Then use the **Interactive** Tuning tool to 'fine tune' servo performance and generate response plots



PMAC HMI - object oriented environment for creating GUI's, includes a wide selection of controls & ActiveX objects



PMAC-NC Pro2 - a Windows-based customizable GUI for PC based CNC control

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