



MACRO Music Demo

The saying goes that you can never be too rich, too thin or too beautiful; well at Delta Tau we like to add that you can never have too much bandwidth.

The **MACRO** (motion and control ring optical) protocol was designed with the power of PMAC in mind. This required that MACRO have the bandwidth to allow for 32 axis of servo motor commutation simulations for controlling their position and I/O. All of this functionality is controlled by one central program.

The advantage to the user is that they have a scaleable, flexible and easier to maintain machine control system.

The **MACRO** Music demo was constructed to illustrate the bandwidth of the protocol by transmitting music over the same network as motion control and I/O data.

Precisely controlling the motion and I/O while reproducing the analog music data on the **MACRO** ring clearly shows the bandwidth of **MACRO**.

The demo consist of a UMAC (universal motion and automation controller) with the Turbo PMAC2 CPU. In the same rack, the ACC-28, analog input board is reading in the left and right channel from an I-pod. The analog audio data is converted to a 16-bit word and processed by the Turbo CPU and put out on the **MACRO** ring. The music data is received by the MACRO CPU in the second rack, processed and used to command the 116 DAC outputs on the ACC-24E2A.

At the same time that the music data is being processed, the Turbo PMAC2 CPU is also controlling four axes of direct digital PWM commutated servo amplifiers and a two axis Geo **MACRO** amplifier. All of this is happening in conjunction with the control of the ACC-11E digital I/O board.

