

APPLICATION NOTE: POSITION CONTROL

The Problem:

A customer has a requirement to wind thread evenly across bobbins used on high speed cloth weaving machines. The bobbin winding operator will load and unload various size bobbins on multiple winding spindles.

The control system must be simple to use and reliable in this type of industrial environment. Additionally, the control system must notify the operator of thread breakage and when a given bobbin is full and ready to reload.

The Answer:

Multiple DAX (Dual Axis) Controller/Driver/Power Supply Modules based on **ADVANCED MICRO SYSTEMS'** SMC-24 imbedded control processors were chosen for this application. The flexibility, ease of use and compact rugged construction of the DAX Module provided an ideal and re-programmable solution to the customers requirement.

The following are details and highlights of the application:

Once the bobbin is loaded onto a high speed winding spindle, a Bar Code present on the bobbin is scanned by a retro-reflective laser and communicates to the DAX Module via a differential RS-422 cable. The DAX now knows what bobbin type and winding profile will be required for this operation. Additional optically isolated inputs checks the condition of safety, limit and home switches. After the setup is complete, the operator presses the Start button, the thread spindle motor begins to spin and the motor positioning the thread guide begins to move in accordance with the internally stored program, distributing thread evenly across the bobbin. Other input ports continuously monitor optical sensors for thread breakage, or other process interruptions. When the bobbin is full, a lamp on the operator control panel is lit, signifying completion, time to reload.

Each DAX unit contains two individual Controller/Driver/Power Supplies. As such, each independent axis has 2K Bytes of non-volatile memory that can be down-loaded with new commands from a portable host or hand held terminal.

