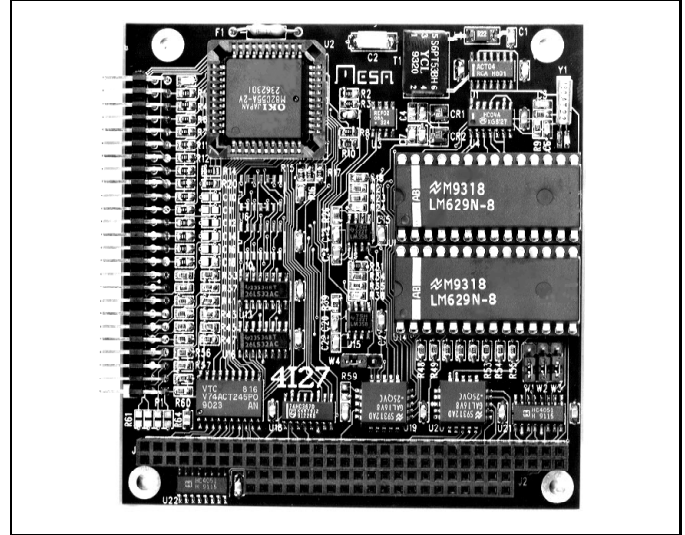




**FEATURES:**

- 2 axis DC servo motor controller
- 31 bit position range
- Programmable digital PID filter
- 8 bit sign-magnitude PWM output
- Low Power (less than 1 watt)
- Position & velocity control modes
- 2 axis H-bridge drivers available
- Small size
- 2 year warranty
- Driver software included



The 4I27 is a low cost, LM629 based 2 axis DC servo motor control system implemented on a stackable PC/104 bus card. The 4I27 is designed for high performance positioning systems using DC servo motors with quadrature shaft encoders. The per axis output of the 4I27 is an 8 bit sign-magnitude PWM signal that can drive H-bridge type servo amplifiers directly.

Quadrature encoder and index inputs are conditioned with RC filters and Schmitt triggers for noise immunity.

Control signals for each axis include 3 auxiliary I/O bits. These I/O bits are used for over-temperature shutdown detect and H-bridge enable when the 4I27 is used with the 7I25 H-bridge driver. Eight general purpose I/O bits are available for any application use.

The LM629's used on the 4I27 are high performance digital processors specifically designed for motion control. The LM629 can execute a ramp-up, slew, and ramp-down motion sequence without host processor intervention.

Host interrupts can be generated at end

of motion, position breakpoints, index pulse, or in response to various error conditions. Interrupts are or'ed on the 4I27 card, so that only one system interrupt is used. The IRQ line used can be software selected from any of the 11 available AT bus interrupts.

A digital PID filter is used to set loop feedback parameters for stability and optimum performance. Velocity, target position and filter parameters may be changed during motion. The clock speed of the LM629's can be lowered to accommodate large motors that require lower PWM chopping frequencies.

Demonstration software includes examples of 2 axis position mode operation, velocity mode operation, and a simple filter tuning program that allows dynamic filter coefficient modification while providing a graphic display of the servo system step response. Source code is provided for all demonstration software. An analog out version of the 4I27 is available as the 4I27A.

## LM629 COMMAND SUMMARY:

Reset	Load Trajectory
Define Home	Start Motion
Set Index Position	Read Status Byte
Interrupt on Error	Read Signals Reg.
Stop on Error	Read Index Pos.
Set Breakpoint Absolute	Read Desired Pos.
Set Breakpoint Relative	Read Real Pos
Mask Interrupts	Read Desired Vel.
Reset Interrupts	Read Real Vel.
Load Filter Parameters	Read Integ. Sum.
Update Filter	

(All commands may be executed during motion.)

## I/O CONNECTOR PINOUT:

Pin#	function	Pin#	function
1	Motor Y Quad B	3	Motor Y Quad A
5	Motor X Quad B	7	Motor X Quad A
9	Motor Y Index	11	Motor X Index
13	Motor Y PWM	15	Motor X PWM
17	Motor Y Direction	19	Motor X Direction
21	/Motor Y Enable	23	/Motor X Enable
25	Motor Y Sense 1	27	Motor X Sense 1
29	Motor Y Sense 0	31	Motor X Sense 0
33	I/O bit 7	35	I/O bit 6
37	I/O bit 5	39	I/O bit 4
41	I/O bit 3	43	I/O bit 2
45	I/O bit 1	47	I/O bit 0
49	+5 volt power		

Even numbered pins 14 through 50 are grounded,  
 Even numbered pins 2 through 12 are open.  
 This pinout is compatible with the 7125 (150 W/chan)  
 and 7127 (450W/chan) dual Hbridge cards

## SPECIFICATIONS:

### POWER REQUIREMENTS:

	Min	Max	Units	Notes
Supply voltage	4.5	5.5	V	
Supply current	----	200	mA	

### I/O LOADING: (PWM,DIR,ENC,INDEX)

	Min	Max	Units	Notes
Input logic low	-.5	.8	V	
Input logic high	2.0	5.5	V	
Output low	----	.4	V	8 mA sink
Output high	3.0	----	V	8 mA source

### I/O LOADING: (82C55 I/O port)

	Min	Max	Units	Notes
Input logic low	-.5	.8	V	
Input logic high	2.0	5.5	V	
Output low	----	.4	V	2.5 mA sink
Output high	3.0	----	V	2.5 mA source

### ENVIRONMENTAL:

	Min	Max	Units	Notes
Temperature range -C version	-0	+70	°C	
Temperature range -I version	-40	+85	°C	
Relative humidity	0	90	Percent	Non-Condensing

ORDERING INFORMATION: MESA 4127

Add -I for industrial temperature range