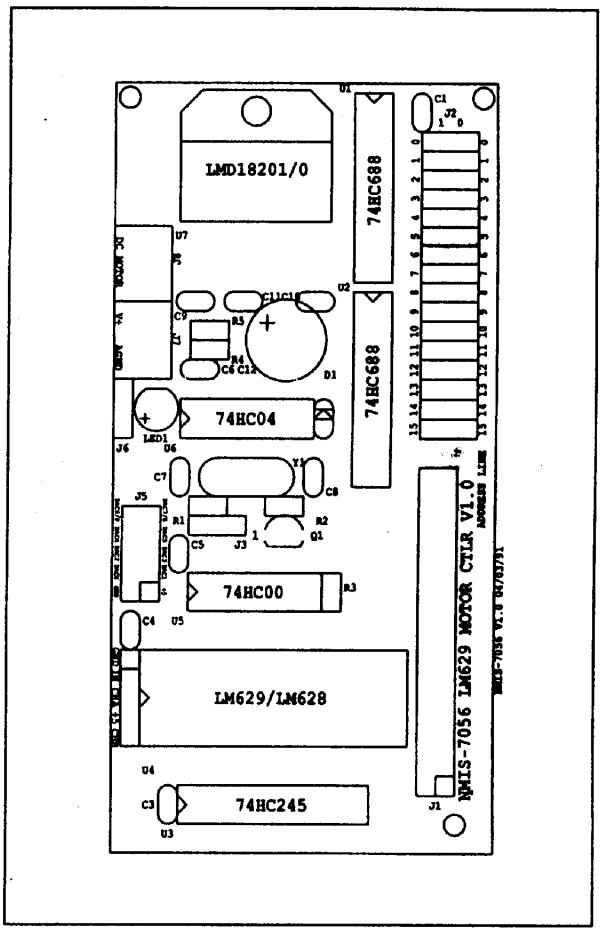
NMIS-7056 SERVO MOTOR DRVR CARD

The NMIS-7056 Servo Motor Driver Card, in 2x4"s™ format, provides a JEDSTACK™ computer system with a method of driving a servo motor. Only motor, quadrature encoder, power source and cabling need to be added to have a complete motion system. For applications like XY tables, multiple cards can be run by a single CPU.

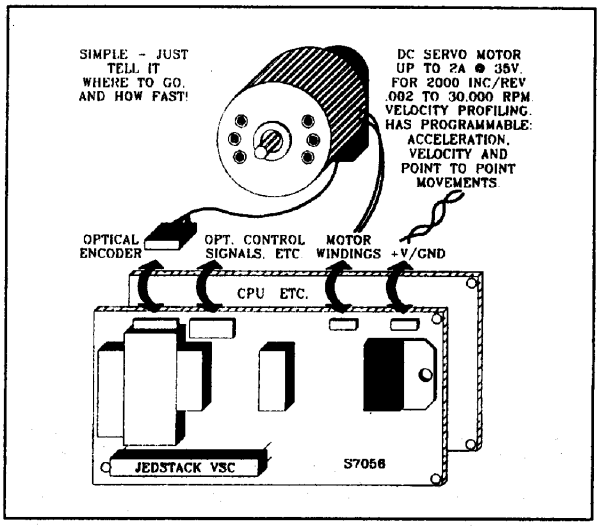


FEATURES

- Complete closed-loop servo motor drive
- Drive currents up to 3 A, voltages up to 55V
- Full H-Bridge drive
- Outputs for driving external power amplifiers
- RPM's of .002 to 30,000 (w/500 line encoder)
- Quadrature incremental encoder interface
- Position counts to 2,147,483,648 (2^{31})
- Digital PID filters with 16-bit coefficients
- Position and velocity modes of operation
- Trapezoidal velocity movement profiling built-in
- Velocity, position and filter parameters may be changed during motion
- Easy programming using 23 software commands
- Real-time programmable host interupts

The National LM629 (or, optionally, LM628) Servo Motor Controller chip provides control logic for driving the motor and reading the quadrature encoder. The National LMD18201 H-Bridge Driver chips (bipolar transistor technology), together, provide a full bridge circuit for driving a DC servo motor.

A Vertical Stacking Connector in the lower right hand corner provides connections to the processor's address and data bus, control signals, 5V power and ground. Address decoding in memory is accomplished by two octal comparators and 16 two-position jumpers. Each jumper setting corresponds to the state of a particular address line. The NMIS-7056 occupies two addresses. Any two-byte boundary in the 64K address space of the JEDSTACK™ processor's bus can be selected by correct jumper placement.



Application

NMIS-7056 SERVO MOTOR DRIVER CARD 2x4"s

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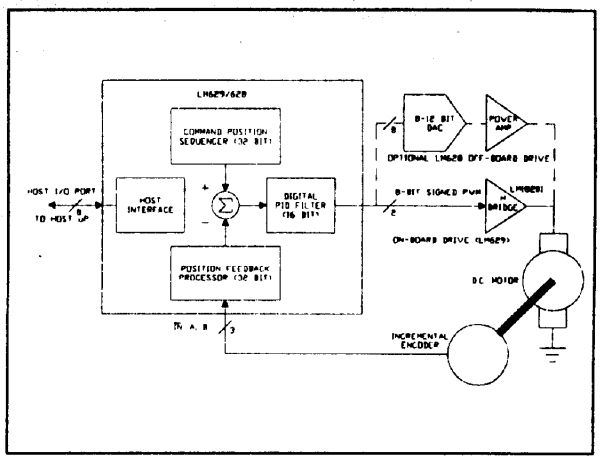
DESCRIPTION

The NMIS-7056 has a built-in motion control processor designed for use with a variety of DC servo motors, which provide a quadrature incremental feedback signal. The LM629 provided on the board does the processing to accomplish the intensive real time tasks required for motion control. The LM629 provides an 8-bit sign-magnitude PWM output, which drives the on-board LMD18201 H-Bridge. The optional LM628 can drive an off-board 8 or 12 bit DAC and power drivers.

ADDRESS	REGISTER
XXX0	COMMAND
XXX1	DATA

Register Summary



Block Diagram of LM629

Command Summary

Command	Type	Description	Hex	Data Bytes	Note
RESET	Initialize	Reset LM628/629	00	0	1
PORT8	Initialize	Select 8-bit Output (LM628)	05	0	2
PORT12	Initialize	Select 12-bit Output (LM628)	06	0	2
DFH	Initialize	Define Home	02	0	1
SIP	Interupt	Set Index Position	03	0	1
LPEI	Interupt	Interupt on Error	1B	2	1
LPES	Interupt	Stop on Error	1A	2	1
SBPA	Interupt	Set Breakpoint, Absolute	20	4	1
SBPR	Interupt	Set Breakpoint, Relative	21	4	1
MSKI	Interupt	Mask Interupts	1C	2	1
RSTI	Interupt	Reset Interupts	1D	2	1
LFIL	Filter	Load Filter Parameters	1E	2 to 10	1
UDF	Filter	Update Filter	04	0	1
LTRJ	Trajectory	Load Trajectory	1F	2 to 14	1
STT	Trajectory	Start Motion	01	0	3
RDSTAT	Report	Read Status Byte	None	1	1,4
RDSIGS	Report	Read Signals Register	0C	2	1
RDIP	Report	Read Index Position	09	4	1
RDDP	Report	Read Desired Position	08	4	1
RDRP	Report	Read Real Position	0A	4	1
RDDV	Report	Read Desired Velocity	07	4	1
RDVR	Report	Read Real Velocity	0B	2	1
RDSUM	Report	Read Integration Sum	0D	2	1

Note 1: Commands may be executed "On the Fly" during motion.
Note 2: Commands not applicable to execution during motion.
Note 3: Commands may be execute during motion, if acceleration parameter was not changed.
Note 4: Command needs no code because the command-port-status-byte is total supported by hardware.

NMIS-7056

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