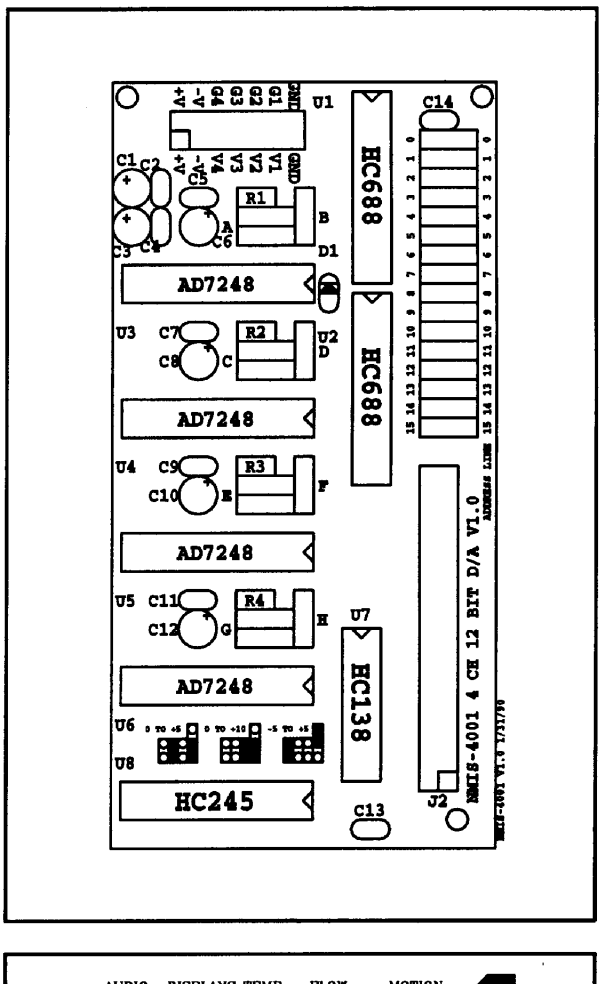
NMIS-4001 12-BIT 4-CH DAC CARD

The NMIS-4001 Digital-to-Analog Converter Card, in 2x4"s™ format, provides a JEDSTACK™ computer system with one channel of 12-bit Digital-to-Analog output. One Analog Devices AD7248 Digital-to-Analog Converter chip is memory mapped by the card. It provides one 12-bit D/A voltage output. The NMIS-4001 can also accept additional AD7248's. Up to three additional (four total) DAC's can be added.



- One channel of 12-bit Digital-to-Analog output
- Up to three additional channels can be installed
- Analog Devices AD7428's DAC chips used

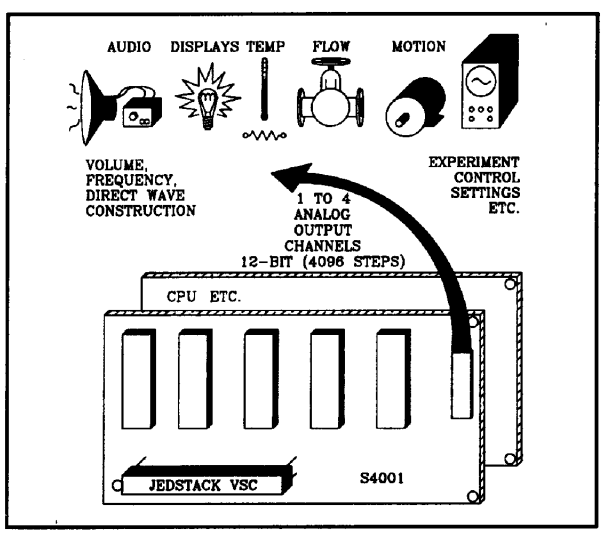
  12-bit CMOS DAC, output amp and reference
- Single or Dual Analog Supply Operation
- Output is buffered voltage, rather than current
- Jumper selectable output ranges:

  Unipolar 0 to 5V

  Unipolar 0 to 10V

  Biploar -5 to +5V

A 14-pin connector, J1, near the upper board edge (top view), has the various D/A outputs, and two voltage-supply pins and returns. A column of 20-pin sockets hold the D/A chips. The Digital-to-Analog Converter chips, Analog Devices AD7248's, are the key parts on the board. Each is a self-contained, 12-bit CMOS DAC with an internal Zener reference and an output amplifier. Each DAC has a group of jumpers which allows selection of either a 0 to 5V, -5 to +5V, or 0 to 10V output range. The output can develop 10V across a 2K ohm load.



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 of the AD7248 DAC's space 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-4001 occupies 8 addresses. Any 8-byte boundary in the 64K address space of the JEDSTACK™ bus can be selected by correct jumper placement.

NMIS-4001

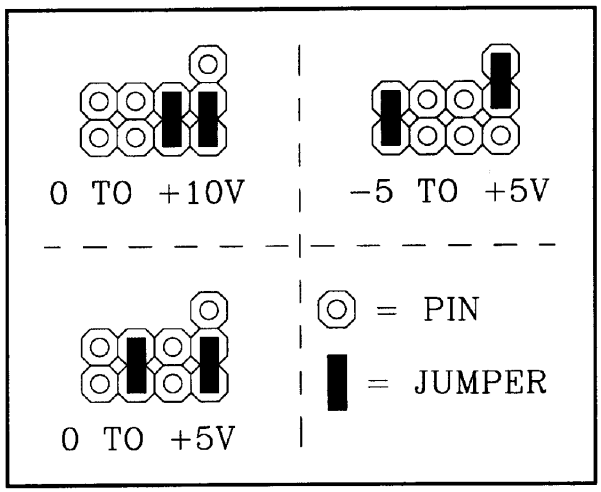
The NMIS-4001 D/A card is designed to stack on the 2x4"s™ NMIS Series, the "100 Squared"™ NMIX and the "Generic Target Computer"™ NMIT Series (with the Vertical Stacking Connector added to the latter) of single board computers. The JEDSTACK™ provides the interface signals to the board including address lines, data lines, control lines and 5V power and ground. The fast AD7248's allow 80nS write times.

Each of the 1-4 possible AD7248's appear at two memory locations, in high-low byte order.The data is right-justified in the 16-bit feild. Data is transferedto the DAC at the end of the low-byte write. The address location where the card is active is user-set by the arrangement of addressing jumpers. The AD7248's are connected to the processor over the parallel Data Bus. The processor can write data directly into the one selected.

The analog -V and +V supplies are applied through J1. For unipolar outputs, 0 to +5V and 0 to +10V, a single +15V supply may be used. For the biploar output, -5V to +5V, a dual +/-15V supply is required. The unipolar ranges may also us a dual supply. (For the 0 to +10V range, a special case exists. The -V supply should not be more negative than -5V. In this situation, +V should be +15V, and -V should be between -5V and 0.) The advantage of a dual supply used even on the unipolar ranges are: faster settling times near 0 (10 uS full scale worst case), and full-sink capability over the entire output range. The typical current requirement for each AD7248 on the board will be 5 mA from +V, and 3 mA from -V.

ADDRESS	DAC #
XXXX+0	MSB DAC1
XXXX+1	LSB DAC1
XXXX+2	MSB DAC2
XXXX+3	LSB DAC2
XXXX+4	MSB DAC3
XXXX+5	LSB DAC3
XXXX+6	MSB DAC4
XXXX+7	LSB DAC4

The D/A outputs to have three ranges. These ranges have varied spans, giving different bit resolutions. For 0 to +5V, which is a 5V span, one binary increment representing 4.88 millivolts. For -5V to +5V; and 0 to +10V, which have 10V spans, one binary increment representing 9.76 millivolts. These ranges can be selected with jumpers that are provided on the board.



NMIS-4001

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