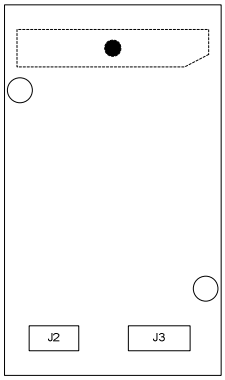
FEATURES

- MDK-8 Interface Form Factor
- Two Independent Axis Control
- Triangular Velocity Profile
- 1-40,000 Hz Pulse Rate
- Selectable Micro-Stepping
  - 1 Step
  - ½ Step
  - ¼ Step
  - 1/8 Step
- Bi-Polar Drive
- Selectable Drive Voltage
  - On Board +5 V
  - On Board +15 V
  - External Connector
- 4 Contact/Position Sensors for each Axis
- Current Controlled Output From 80 to 820 mA per coil

APPLICATIONS

- Embedded Motion Control
- Medical Instrument Control
- Industrial Control



DESCRIPTION

The MDK8-A3967 provides two independent channels of stepper motor control in the MityDSP Development Kit 8 (MDK-8) series form factor. The card uses the Allegro A3967 micro-stepping bi-polar drive controller chips. The MDK8- A3967 is compatible with the MityDSP hardware and software development kit API. Refer to the User's Manual provided with the libraries for further information.

A block diagram of the MDK8-A3967 is illustrated in Figure 1. All interface signals available on the A3967 chip are routed to the MDK-8 FPGA I/O connector pins for full control by a connected MityDSP. In addition, 4 external pins (for each axis) are routed to I/O connectors in order to provide contact closure detection for position feedback purposes. This allows for motion interlock features to be designed into the system as well as seek type functions.

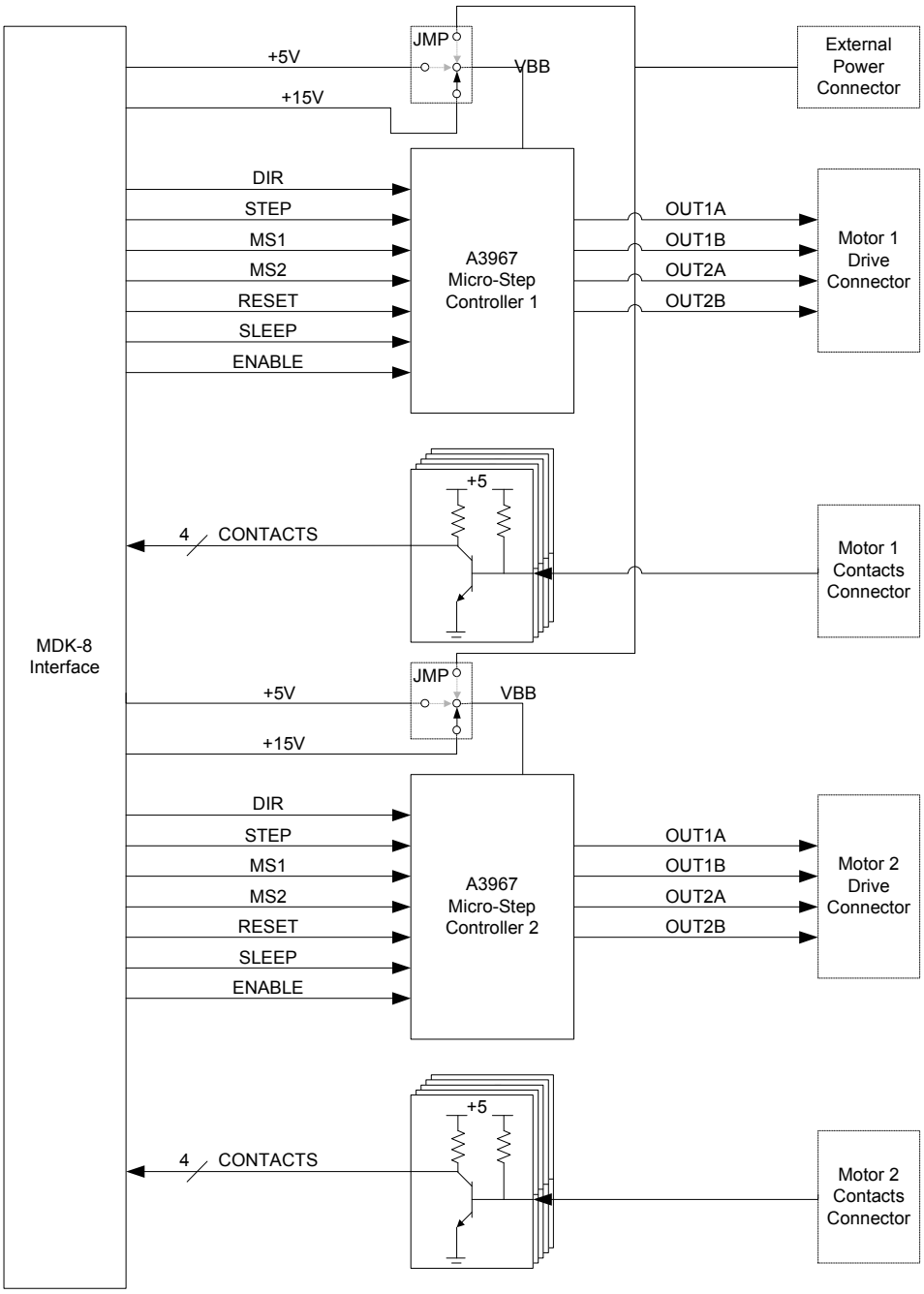


Figure 1 MDK8-A3967 Block Diagram

ABSOLUTE MAXIMUM RATINGS

If Military/Aerospace specified cards are required, please contact the Critical Link Sales Office or unit Distributors for availability and specifications.

Max Current Draw, +5V	0.4 A
Max Current Draw, +15V	0.4 A
Max Current Draw, External	1.6 A
Storage Temperature Range	-65 to 80C
Shock, Z-Axis	±10 g
Shock, X/Y-Axis	±10 g

OPERATING CONDITIONS

Ambient Temperature Range	0 to 55C
Humidity	0 to 95% Non-condensing
Vibration, Z-Axis	TBS
Vibration, X/Y-Axis	TBS

MDK-8 Socket Interface Description

The bottom connector of the MDK-ADS8329 card uses the required Hirose FX6-50P-0.8SV 50 position socket. The pin assignments for the card are listed in Table 1.

Table 1 MDK-8 Connector Pin Assignments

Pin	Signal	I/O	Pin	Signal	I/O
A1		I	B1	+5 V	-
A2		I	B2	+5 V	-
A3		I	B3	+3.3 V	-
A4		O	B4	+3.3 V	-
A5		I	B5	+12 VA	-
A6		O	B6	GND	-
A7		O	B7	GND	-
A8		O	B8	GND	-
A9		I	B9	-12 VA	-
A10		I	B10	+15 V	-
A11		I	B11	+15 V	-
A12	Not Used	-	B12	-15 V	-
A13	Not Used	-	B13	-15 V	-
A14	Not Used	-	B14	AGND	-
A15	Not Used	-	B15	AGND	-
A16	Not Used	-	B16	DO_CLK	-
A17	Not Used	-	B17	RSV	-
A18	Not Used	-	B18	RSV	-
A19	Not Used	-	B19	RSV	-
A20	Not Used	-	B20	RSV	-
A21	Not Used	-	B21	RSV	-
A22	Not Used	-	B22	RSV	-
A23	Not Used	-	B23	RSV	-
A24	Not Used	-	B24	RSV	-
A25		I	B25	RSV	-

Stepper Motor Drive Interface Description

The analog input interface to the MDK-ADS8329 uses a locking Molex 5 pin connector on standard 0.100 inch spacing. AMP TBD connectors (or equivalent) should be used with interface cables.

Table 2 J2 Pin Assignments

Pin	Signal	I/O	Pin	Signal	I/O
1	AI	I	2	AGND	-

Stepper Contact Closure Interface Description

Connector J3 include TTL inputs for external contact closure signals and external clock sources for use by the electrically connected MityDSP FPGA (through the MDK-MB interconnects).

Table 3 J2 Pin Assignments

Pin	Signal	I/O	Pin	Signal	I/O
1	TRIG_IN	I	2	GND	-
3	CLK_IN	I	4	GND	-

Software API and Supported Modes

The MityDSP software and firmware development kit includes a core interface and C++ API for interfacing to the A3967 part (class tcDspStepper). Refer to the MDK Software User's Guide for more information. Use of the GPIO MDK-MB API is required in order to properly configure the microstepping features as well as the reset and sleep pins. Example software is included in the appendix of this specification for configuration of the card.