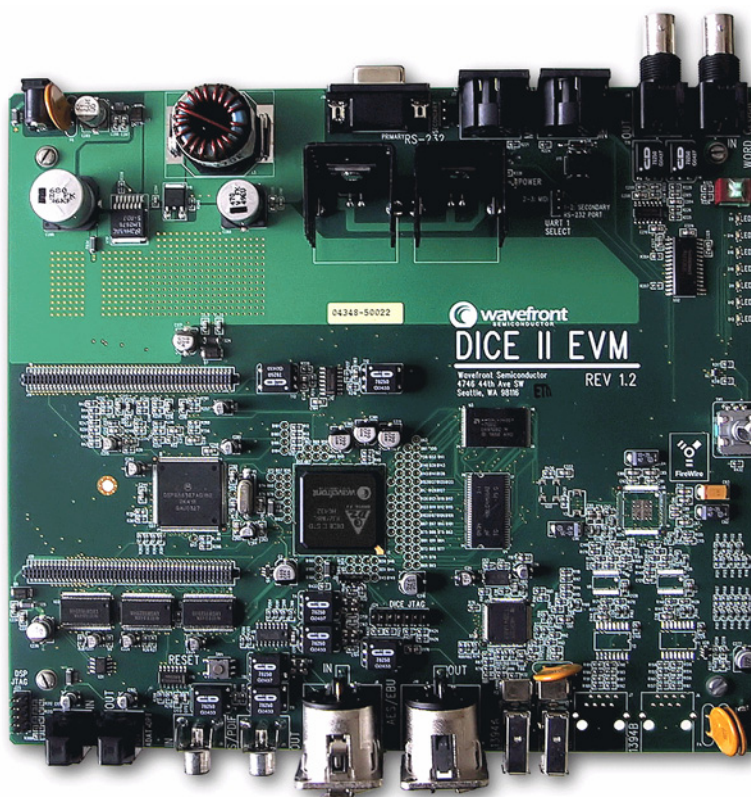


DICE II EVM

Quick Start Guide



EVM Features:

FireWire

- IEEE 1394A via two 6-pin connectors
- IEEE 1394B via two CAT-5 connectors (not presently supported)

Audio Interfaces

- AES/EBU Input and Output
- SPDIF Input and Output
- ADAT Optical Input and Output
- Word Clock Input and Output
- MIDI Input and Output

Development Interfaces

- RS-232 Debug ports
- Expansion connectors
- Motorola DSP56367 to demonstrate typical DSP operation
- Headers and test points on all important signals

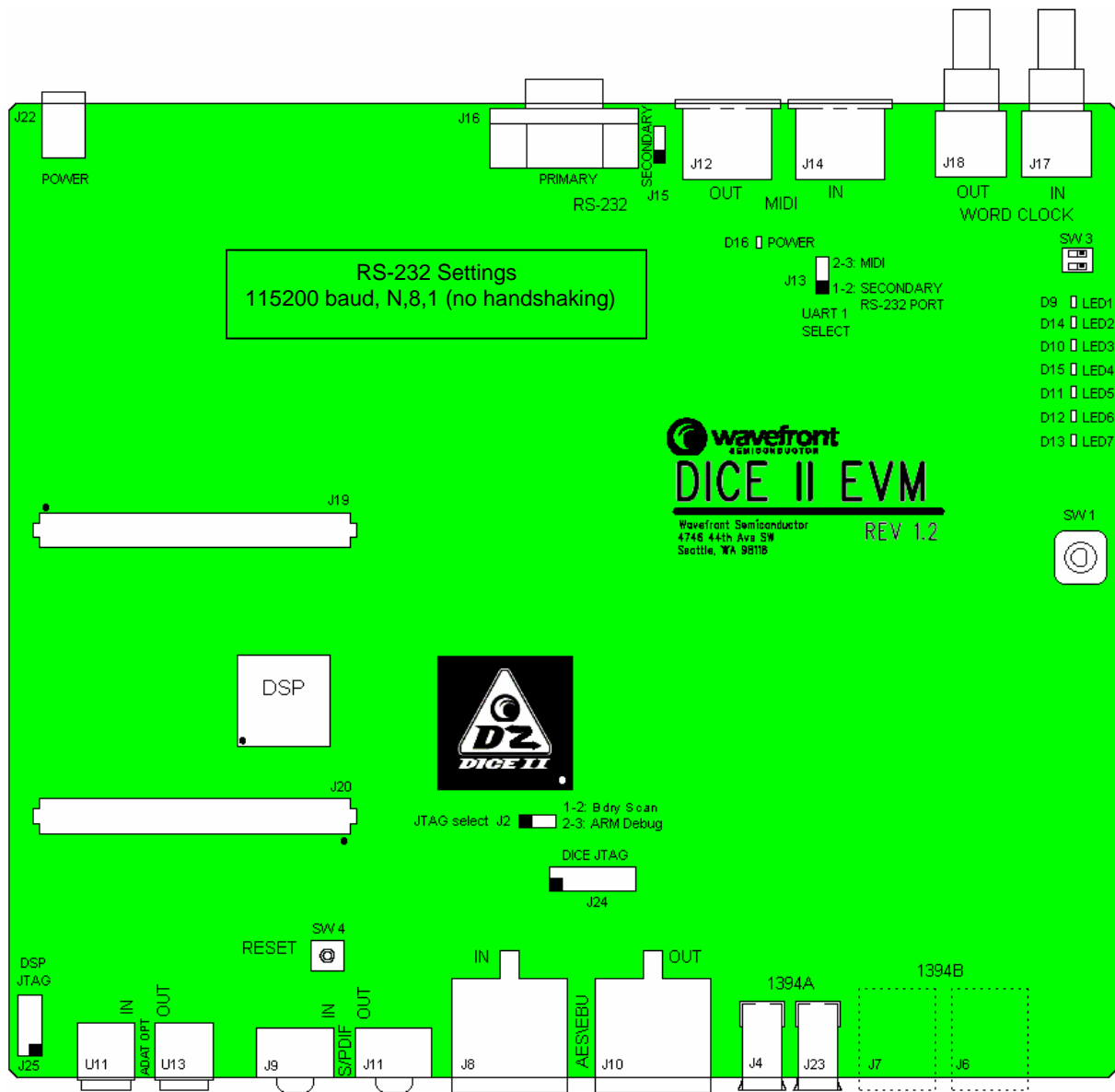
User Interface

- Eight LEDs for indicating status
- Rotary grey-code encoder
- 2-bit DIP Switch

Power Supply

- Switching Power Supply accepts external power adapter or FireWire bus power

Connectors & User Controls



DICE II EVM Top View

DICE II EVM Quick Start Guide

Connector/Control	Component(s)	Description
Power Connector	J22	Plug your power adapter here. Since the EVM can be bus powered by FireWire, this power input is optional. D16 is the power indicator.
Primary RS-232 Connector	J16	Connect your PC COM port to this connector using the supplied serial cable. Run a terminal program (e.g. Hyper Terminal in Win XP) to access the DICE II Command Line Interface (CLI) monitor. The PC COM port must be set to: 115200 baud, N,8,1 (no handshaking).
MIDI Interface	J12, J14	MIDI input and output connectors. MIDI input is dependent on the setting of header J13 (see below).
Secondary RS-232 Connector	J15, J13	J15 is a three-terminal header that can be used to access the secondary UART on DICE II. RS-232 level shifting is provided on the EVM. Please use the supplied DB9/3-pin serial cable. This interface is used for debugging DICE II firmware via the GNU Debugger (GDB). Note that this secondary UART is shared with the MIDI function. To enable RS-232 debug please place the shunt over pins 1-2 of J13. For MIDI operation, please place the shunt over pins 2-3 of J13.
Word Clock Interface	J16, J17	These 75 ohm BNC connectors provide access to the Word Clock Input and Output on DICE II.
DIP Switch	SW3	This DIP switch currently has no function. It is provided for future use, and serves as an example of how to connect user interface switches to DICE II GPIO.
LEDs	LED1 – LED7	These LEDs indicated status of functions on the EVM. Please consult the DICE II EVM Manual for details.
Rotary Encoder	SW1	This rotary encoder currently has no function. It is provided for future use, and serves as an example of how to properly connect grey code encoders to the DICE II.
IEEE1394b CAT-5 Interface	J6, J7	Due to bugs in the TI 1394B silicon, these connectors and the associated IEEE 1394B PHY are not mounted on this revision of the EVM.
FireWire Interface	J4, J23	Standard 6-pin IEEE 1394A connectors. Supports bus power (provides power to the Firewire bus if power adapter is plugged into J22; consumes bus power if no power adapter is plugged in). D16 is the power indicator.
AES/EBU Interface	J8, J10	AES/EBU (AES3) input and output.
SPDIF (IEC 60958) Interface	J9, J11	SPDIF input and output.
ADAT Optical Interface	U11, U13	ADAT Optical input and output.
DSP JTAG	J25	JTAG port for the Motorola DSP56367 DSP.
DICE II JTAG	J24, J2	JTAG port for the DICE II. Primarily used for programming FLASH memory on a brand new unit. Not normally used for firmware development (serial debug via J15 using GNU GDB is favored over JTAG). J2 selects between Boundary Scan (shunt on pins 1-2) or debug (shunt on pins 2-3).
RESET Switch	SW4	Resets the EVM.
Expansion Connectors	J19, J20	These connectors carry important signals from DICE II to a "daughter card". Raw power from J22 or FireWire bus power is also present.

DICE II EVM Connectors and User Controls

Driver Installation

The DICE II EVM ships with the latest version of the DICE II drivers for Windows XP and Mac OS X. Please consult the Release Notes file on the DICE II Driver CD for installation instructions.

Typical Applications

DAW Recording/Playback

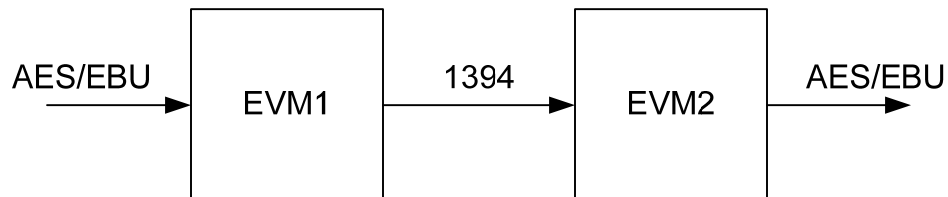
The DICE II EVM can operate as a 12-in/12-out “breakout box” using the on-board ADAT Optical and AES3/SPDIF interfaces. Two more AES3 input and output ports (for a total of 16 audio inputs and 16 audio outputs) can be interfaced via the Expansion Connectors.

The supplied DICE II Driver allows digital audio workstation software (e.g. Steinberg Cuebase, Logic, etc.) to transmit/receive audio channels to/from the EVM.

To set up this system, connect one or more digital audio source devices to the ADAT Optical, SPDIF, and/or AES3 ports on the EVM. Follow the instructions on the DICE II Driver CD to configure the driver. Launch your DAW software and configure it for the DICE II driver. The DICE II EVM should now be operational as the audio input/output device.

EVM to EVM

Two EVMs can be interfaced via FireWire, and digital audio can be streamed from one to the other (see diagram below).



EVM to EVM AES3/EBU Transmission

The DICE II EVMs in this application must be configured via the DICE Command Line Interface (CLI). Please consult the *DICE II Command Line Interface Reference* for information on the CLI commands. You will need to connect a PC running a terminal program (e.g. Hyper Terminal) to J16 of each EVM. The communications settings are: 115200 baud, N81.

Using CLI commands, the above example is configured as follows:

- Connect your serial terminal to EVM1 and configure it to transmit the AES (S/PDIF 48KHz) input signal over FireWire isochronous channel 0 by typing in the following CLI commands:

```
sys.setmask 0x4000
dal.destroy 0
avs.itc 1 tx 0
avs.its 1 tx 48k
avs.dbs 1 tx 8
avs.format 1 tx label
avs.speed 1 s400
dal.create 0 low_mid "aes avs1" "aes avs1"
dal.route 0 avs1 0 aes 0 t8
dal.clock 0 aesAny 48k
dal.start 0
avs.it 1 tx start
```

- Connect your serial terminal to EVM2 and configure it to receive and output the AES signal from FireWire isochronous channel 0 by typing in the following CLI commands:

```
sys.setmask 0x4000
dal.destroy 0
avs.itc 1 rx 0
avs.its 1 rx 48k
avs.dbs 1 rx 8
dal.create 0 low_mid "aes avs1" "aes avs1"
dal.route 0 aes 0 avs1 0 t8
dal.clock 0 avs1 48k
dal.start 0
avs.it 1 rx start
```