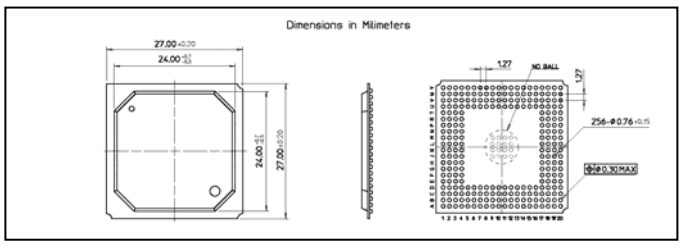
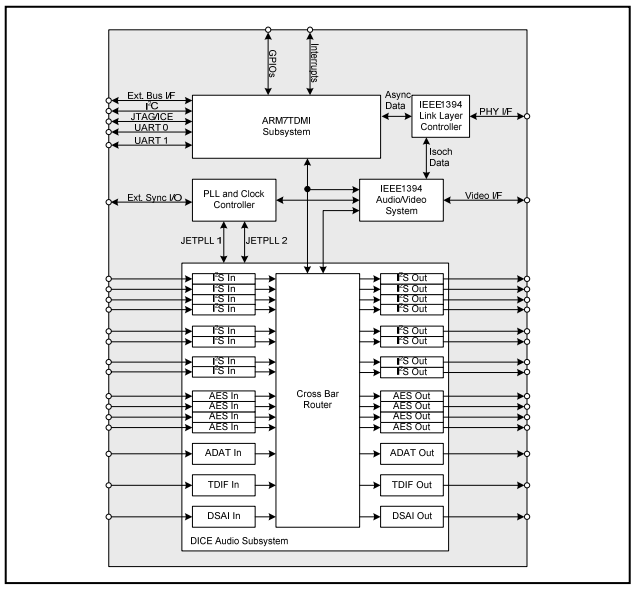
DICE II

SINGLE CHIP IEEE 1394 AUDIO SOLUTION FOR PRO AND CONSUMER APPLICATIONS

- Complete **IEEE 1394**, **AES3**, **ADAT®**, **TDIF** and **I²S** transceiver
- **IEC 61883-6** Compliant Audio Streaming
- **AV/C** Streaming Support
- **OGT** connection management support
- +1.8V core supply, +3.3V I/O
- A total of 96 IEEE1394 FireWire® audio channels (64 Rx/32 Tx) at 96kHz Sample Rate
- Two individual Sample Rate domains, each featuring patented **JET™ PLL** technology
- Supports all audio sample rates up to 192kHz
- **AES** receiver/transmitter handling 8 channels in each direction
- **ADAT** receiver/transmitter with **S-MUX** support for 96kHz
- Glueless connection of AD/DA converters (16 channels in each direction)
- Glueless connection to multiple generic DSP's
- **ARM™** 32 bit RISC processor
- IEEE 1394 Link Layer Controller
- Support of 100 meter CAT-5 cables (Ethernet style)
- Additional DICE II chips may be arrayed for scalable channel handling capability
- Available in BGA-272 package
- Patented Jet™ PLL Low jitter clock recovery
- Driver support for Windows XP (ASIO & WDM Audio) and Mac OSX





DICE II is a monolithic CMOS ASIC capable of receiving and transmitting up to 96 channels of audio data in accordance with the **IEEE 1394** standard. DICE II also functions as a cross point router between any combination of **AES3**, **ADAT®**, **TDIF**, ADC and DAC ports. The new DICE II technology simplifies the interface to IEEE 1394 and other popular digital audio formats, while it maximizes the clocking accuracy of audio samples.

Unique to the DICE II is patented **JET™ PLL** technology supporting the two sample rate domains.

With its high integration, JET™ PLL technology, and support of IEEE 1394b DICE II gives 1394 the versatility necessary for professional and consumer audio markets. Now low cost CAT5/6 cable has up 100 meter support of 1394b at the data rates of all popular digital audio formats.

DICE II's broadband streaming engine handles all aspects of moving data without placing realtime load on the host processor (**ARM™**).

The full **SDK** supports Hardware Abstraction Layer (**HAL**) libraries and **IEEE 1394** stacks with support for **OGT**, **AV/C** and **TCP/IP** .

For consumer oriented applications the firmware provides hooks to 3rd party stacks implementing **uPnP** etc.

For further information contact:

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Chip Features

CPU core

- Full 32-bit ARM7TDMI RISC processor
- 32-bit internal bus
- 16-bit Thumb mode
- 32 Kb 0 wait state RAM
- 15 general-purpose 32-bit registers
- 32-bit program counter and status register
- 5 supervisor modes, 1 user mode
- External Bus Interface (EBI)
- Remap of Internal RAM during boot.

I2C Interface

- Standard and Full Speed support
- Slave mode with address match logic
- Master Mode
- 10 bit and 7 bit addressing mode
- 16 deep FIFO buffer

Dual Timer Unit

- 32 bit counter
- Free running and user-defined count
- Interrupt on counter wrap
- Clocked by CPU clock

Watch Dog

Dual Universal Asynchronous Receiver Transmitter (UART)

- Industry standard 16550 Compliant
- 16 deep receive and transmit FIFO's
- Supports all standard RS232 Rates
- Supports MIDI rate

General Purpose Input Output (GPIO)

- 16 individual ports
- Each port configurable as input or output
- Each port configurable for level or edge sensitive interrupts
- Configurable deglitching logic for each port

Quad Rotary Encoder Interface (Gray Decoder)

- individual rotary encoder counters
- 8 bit signed counter per port
- Configurable interrupt on value change

IEEE 1394 Link Layer Controller (LLC)

- IEEE 1394a compliant LLC
- Compliant PHY interface
- Support for isolation barrier
- 512x32 FIFO for asynchronous communication

Digital Interface Communication Engine (DICE)

- Two individual Sample rate domains
- One **JET™ PLL** per domain
- One Cross-point router per domain, free routing between all 112 input channels and 144 output channels.
- AES Receiver, 8 channels (4 ch @ 192KHz)
- AES Transmitter, 8 channels (4 ch @ 192KHz)
- I2S Receiver, 16 channels (12 ch @ 192KHz)
- I2S Transmitter, 16 channels (12 ch @ 192KHz)
- ADAT Receiver, 8 channels (4 ch @ 96KHz)
- ADAT Transmitter, 8 channels (4 ch @ 96KHz)
- Digital Serial Audio Interface Receiver (DSAI), 32 channels (16 ch @192KHz)
- Digital Serial Audio Interface Transmitter (DSAI), 32 channels (16 ch @192KHz)
- ARM Audio Receiver/Transmitter, 8 channels (4 ch @ 192KHz)
- IEC 61883-6 Isoc. Receiver, 64 channels (32 ch @ 192KHz)
- IEC 61883-6 Isoc. Transmitter, 32 channels (16 ch @ 192KHz)
- TDIF Receiver, 8 channels.
- TDIF Transmitter, 8 channels
- Channel Status and User bit handling on AES and IEEE 1394 audio channels.

IEEE 1394 Audio Video System (AVS)

- Configured as either input or output
- 8 bit interface
- Supports gated clock
- Supports DV, MPEG2 and raw Isoc.
- Configurable smoothing engine.

Power and operating voltage

- 900 mW maximum, 250 mW typical (TBD)
- 3.3 volts - I/O
- 1.8 volts – core

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