

The KK7P DSPx Module is designed for Amateur radio experimentation and use. It is an excellent tool for learning about Digital Signal Processing, writing and testing DSP algorithms – or just embedding into your latest project!

In addition to its low price, it offers:

- Compact size (1.8" x 2.0" – 4.6 x 5.0 cm)
- Low power (225 mW)
- 80 million instruction/sec rate (80 MIPS)
- Flash memory for easy upgrading
- Dual 16-bit analog-to-digital converter (ADC)
- Dual 16-bit digital-to-analog converter (DAC)
- ADC and DAC sampling rates to 96 kHz
- Easy installation – it just plugs in!
- Open-source applications (DSP-10, EMRFD projects,...)
- Free DOS-compatible development tools
- Assembled and tested for immediate use

The DSPx design and physical PC board layout was optimized for low power applications, and maximizing the dynamic range of the ADC and DAC.

The KDSP10 Interface Kit makes it easy to develop code and applications for the DSPx. It provides audio interfaces, power supply regulation, RS232 serial port, and special features to directly support the DSP-10 Software Defined Radio.

The DSPx has two connectors: a 20-pin digital (J2) and a 12-pin analog (J3).

**J2 – Digital I/O**

All digital I/O is at 3.3V logic levels. Refer to the Analog Devices data sheets and hardware manual for signal function details. These are on the included CD-ROM or on the web at [www.analog.com](http://www.analog.com).

Pin	Function
1	+3.6 to +5.5 VDC input
2	Power and Signal Ground
3	FL0 Output
4	FL1 Output
5	FL2 Output
6	PF0 I/O w/10K pulldown
7	PF1 I/O w/10K pulldown
8	PF2 I/O w/10K pulldown
9	PF3 I/O w/10K pulldown
10	SPORT1 DT Output
11	SPORT1 TFS I/O w/10K pulldown
12	SPORT1 DR Input w/10K pullup
13	SPORT1 RFS I/O w/10K pulldown
14	SPORT1 SCLK I/O w/10K pulldown
15	IRQE/PF4 I/O w/10K pullup
16	IRQL0/PF5 I/O w/10K pullup
17	IRQL1/PF6 I/O w/10K pullup
18	IRQ2/PF7 I/O w/10K pullup
19	Powerdown Input w/10K pullup
20	RESET I/O w/10K pullup

**J3 – Analog I/O**

The analog signals are directly attached to the TI TLV320AIC23B CODEC chip. Please refer to the data sheet on the CD-ROM or on the web at [www.ti.com](http://www.ti.com).

Pin	Function
1	Right Line Input (RLINEIN)
2	Left Line Input (LLINEIN)
3	Analog Signal Ground
4	Right Line Output (ROUT)
5	Left Line Output (LOUT)
6	Right Headphone Output (RHPOUT)
7	Left Headphone Output (LHPOUT)
8	Analog Signal Ground
9	Microphone Input (MICIN)
10	Electret Microphone Bias (MCBIAS)
11	Analog Reference Voltage (VMID)
12	Analog Signal Ground

**Jumpers**

JP1 and JP2 are readable by an INPUT instruction to any address in ADSP-2185N IO Space. JP1 is mapped to data bus bit 8; JP2 to bit 9. Both are pulled high by an internal pullup in the CPLD.

**Power Options**

The DSPx is designed to run from an external supply of +3.6 VDC to +5.5VDC.

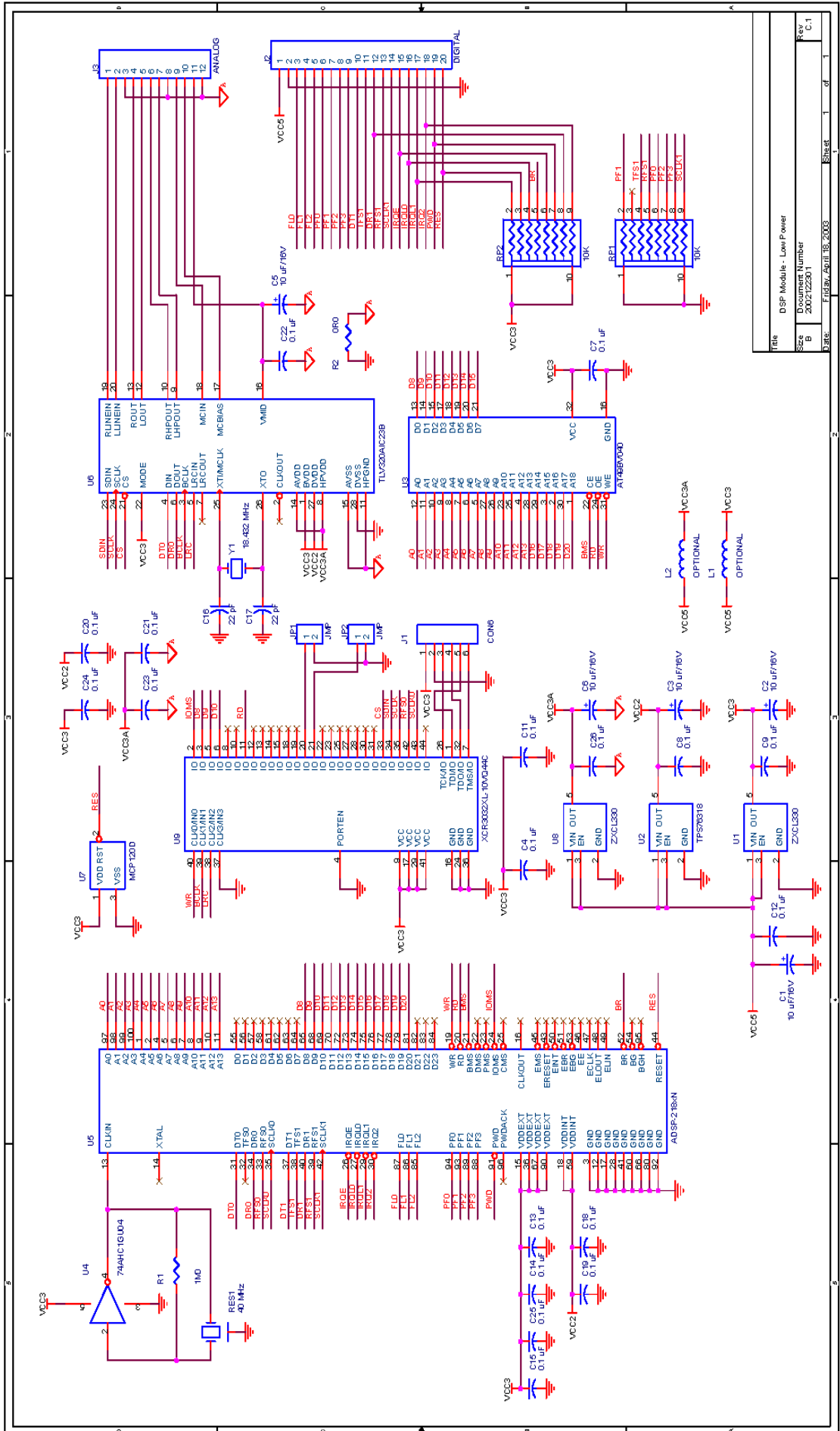
Failure to observe polarity or voltage limits may damage DSPx and will void any warranty.

If you wish to operate the DSPx at voltages between +2.7 and +3.6, you may do so by placing an inductor at L1 and another at L2. These inductors will directly source the 3-volt digital and 3-volt analog supplies. The analog section in particular may suffer degraded performance under these circumstances.

**For Further Information...**

Refer to the CD-ROM, the TAPR website ([www.tapr.org](http://www.tapr.org)), the DSP-10 Project website ([www.proaxis.com/~boblark/dsp10.htm](http://www.proaxis.com/~boblark/dsp10.htm)) and the KK7P website ([www.kk7p.com](http://www.kk7p.com)) for further information on the use of the KK7P DSPx module and interface.

SCHEMATIC



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