what type of dsp chips used in elektron gear?

Posted by 909techno - 2008/09/11 07:31

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Anyone know what type and number of dsp chips are used in elektron gear? Just curious - wanting to get into dsp programming and was curious what elektron is using.

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Re:what type of dsp chips used in elektron gear?

Posted by texmex - 2008/09/11 16:06

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I think they have Motorola 56303 as quite many other synths do. At least Waldorf, Access and Novation have been using them.

http://www.sequencer.de/synth/index.php/Chips_in_Synthesizers

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Re:what type of dsp chips used in elektron gear?

Posted by ens - 2008/09/12 00:35

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Any specific projects in mind or just dsp in general? I'm also thinking about getting more into dsp. Do you know of any good websites or books about dsp for neewbies?

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Re:what type of dsp chips used in elektron gear?

Posted by daswesen - 2008/09/12 03:04

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yes texmex is right, they have 2 dsp56303 chips (at least my mkI md-uw), coupled to a mcf5306 coldfire processor. The coldfire has 8 Mb RAM, while the dsp each have 16 Mb RAM + 1.5 Mb SRAM.

Cheers, manuel

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Re:what type of dsp chips used in elektron gear?

Posted by 909techno - 2008/09/14 03:13

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Let me know if anyone comes across good beginner dsp guides.

The chips are not that expensive. I would love to have a joint project of establishing a inexpensive basic disp board that we could jointly work on. Perhaps coding separately but knowing that our work would be interchangeable with others using the same platform.

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Re:what type of dsp chips used in elektron gear?

Posted by daswesen - 2008/09/14 04:12

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the development environment is expensive though, or can you use something else than altium tasking? Have you had a look at: http://beagleboard.org/ ? There are plenty of dsp boards around to try things out. The DSPIC with inbuilt DAC is pretty cool too. For dsp synth programming i'd recommend musicdsp.org and basically just diving in and making some cheesy easy aliasing oscillators and filters, and then take it up a notch and try out blit/minblep and things like that, or oversampling. Most DSP resources focus a loton maths and "normal" signal processing, which is not that useful when you try to make musical bleeps.

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Re:what type of dsp chips used in elektron gear?

Posted by KrisM - 2012/12/29 11:33

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Yes, this is a very old thread. But I was talking about DSPs today, and how so many companies use Motorola/Freescale, and I saw this thread on the MD and MnM using them. Read about the Virus TI using two Freescale 150 MIPS DSPs while the Nord Lead 3 uses 6 120 MIPS DSPs, and so I wanted to crack open my Octatrack and see, since I couldn't find any pics online of the board aside from that guy complaining about build quality... Figure it might as well be all in one thread for all Elektron gear ;)

So.

Behold.

Freescale Coldfire MCF54454:
32-bit 266MHz, up to 410 MIPS @ 266

Freescale DSPB56721AG:
24-bit 200MHz Audio DSP, 200 MIPS
Dual DSP56300 cores

Cirrus Logic CS42432-CMZ audio codec:
24-bit ADC x4/DAC x6
DAC sampling rate up to 192KHz
ADC sampling rate up to 96KHz

The RAM is Micron 46V64M8 -6T (DDR 266, used in Kingston 'Value Select' RAM modules -_- oh well. It works, right?)

There's a couple flash memory chips on there, too, but I figure the above are the important ones.

Also, there was a big unused header labelled 'J4' and it had probably as many pins as the three used headers combined... and there was empty room next to it in the chassis for... perhaps... a planned hardware upgrade? Octatrack doesn't use +Drive >.>

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Re:what type of dsp chips used in elektron gear?

Posted by anigbrowl - 2012/12/29 14:29

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Thanks for this! That coldfire + 56k family combination is still going strong. I have 3 very different synths here on the desk in front of me that all use some variant of it. You can find free development tools for all subsystems if you look around. The 56k family can be programmed in C, but it's not unpleasant to do in assembler, as the Harvard architecture implementation is very elegant.

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Re:what type of dsp chips used in elektron gear?

Posted by glitched - 2012/12/29 14:34

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Now you're playing with power!

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Re:what type of dsp chips used in elektron gear?

Posted by KrisM - 2012/12/29 17:06

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Absolutely. I love opening things up >.>

The board itself (the main black one, not the blue power supply board) says:

"Octatrack CPU 7003 Revision H circa 2010 Elektron Music Machines" on mine.

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Re:what type of dsp chips used in elektron gear?
Posted by Amanita - 2012/12/29 17:36
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Someone open up an A4 and see if it is using a programmable analog array or discrete components - then we will know if mods to the Osc are possible.... or indeed new wave shapes.

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Re:what type of dsp chips used in elektron gear?
Posted by dimStar - 2012/12/29 20:34
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According to Elektron these are discrete SMD.

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Re:what type of dsp chips used in elektron gear?
Posted by sovietpop - 2012/12/30 00:22
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I am very curious too, would like to see the interior of the a4 B)
Gotta wait until warranty expired .

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Re:what type of dsp chips used in elektron gear?
Posted by KrisM - 2012/12/30 02:56
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Oh, I forgot to mention the 3V lithium coin battery. Seriously Elektron? In 2010? Flash memory is cheap these days, I hate battery-fed RAM for preset saving -_- Oh well, I'm just nitpicking, not like it needs replacing every month, or even year. At least they used a holder and didn't solder it in there like so many old synths...

sovietpop wrote:
I am very curious too, would like to see the interior of the a4 B)
Gotta wait until warranty expired .

Pssh, three years is an awfully long time to wait. You won't hurt anything if you're careful :D Though from the reports I've seen about cheap paint, that would put me off more. Tightening a screw back down and cracking the finish would hurt my heart lol.

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Re:what type of dsp chips used in elektron gear?
Posted by AmorSinFronteras - 2012/12/30 04:08
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OT has following elements inside:

DSP - Freescale Semiconductor - Symphony
DSPB56721AG â€" AUDIO PROCESSOR SYMPH 144-LQFP

CPU - Freescale Semiconductor
MCF54454VR266

OpAmp - National Semiconductor
LM837M/NOPB â€" IC OP AMP QUAD LOW NOISE 14-SOIC

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Re:what type of dsp chips used in elektron gear?
Posted by KrisM - 2013/01/03 06:47
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Seems I missed the OpAmp ;)

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