



Complete DSP Kits for Education

When you could use better
tools for teaching



Hyperception

www.hyperception.com

The Leader in DSP

DSP Education Kits

Complete Turnkey DSP Systems with Hardware and Software for Teaching Purposes

The DSP Education Kits available from Hyperception combine complete turnkey real-time DSP hardware & software with low cost. Whether a single DSP station or 50 stations, there's never been an easier way to get your DSP lab up and running.

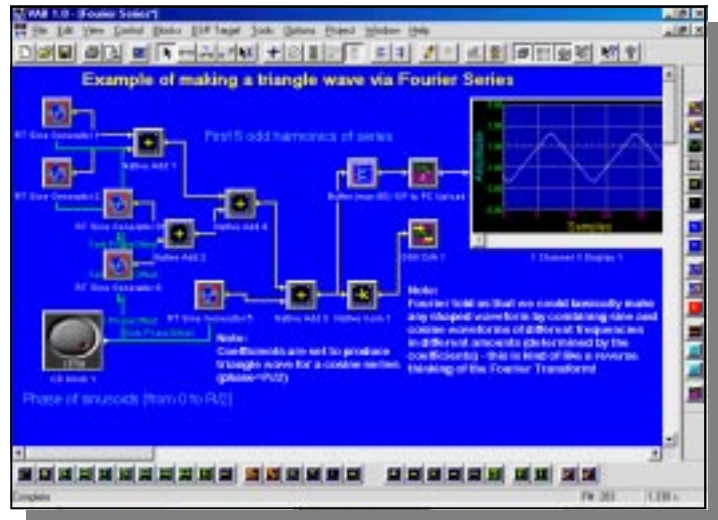


Relevance to help keep students interested

Today it is more important than ever in engineering to be able to demonstrate real world relevance. The excitement of applying lessons and concepts to actual real-time DSP hardware while seeing and hearing live signals adds much to the overall learning experience.



Easy to use VAB software is included in all DSP education Kits. Very little learning curve is required to get up and running with real-time DSP examples



An example of Fourier Series running in real-time on actual DSP hardware; the student can see and hear the concept being taught!

Spend more time teaching DSP, less on tools

With the DSP Education Kits from Hyperception, you can spend more of your teaching time on concept, and less on teaching tools. Many think that teaching live, real-time DSP has a steep learning curve which is counter productive to teaching; with these kits, it is possible to show the beauty and power of real-time DSP within minutes of installation. There is no requirement to learn about software C language, compilers, debuggers, or the like.

Interactive Learning

The live interactive nature of these DSP Kits helps increase the interest level of the students; they are allowed to see and hear live data being processed in real-time by the DSP. This interactive capability affords a better learning experience for the students, and helps them gain an appreciation as to how and why DSP's are used in so many applications today.

Standard Hardware

The DSP Education Kits include standard DSP hardware to allow for the

latest DSP's from Texas Instruments to be used in real-time processing. This hardware may be upgraded by adding low-cost daughter modules available from Texas Instruments, Hyperception, and others, allowing the DSP hardware to stay current and meet a variety of application needs.

Powerful VAB® Software

The graphical nature of the included Visual Application Builder (VAB) software makes both teaching and learning about real-time DSP easier than ever before. Hyperception partnered with Texas Instruments to create this easy to use DSP software. Many examples are included which are important and relevant to real world commercial applications.

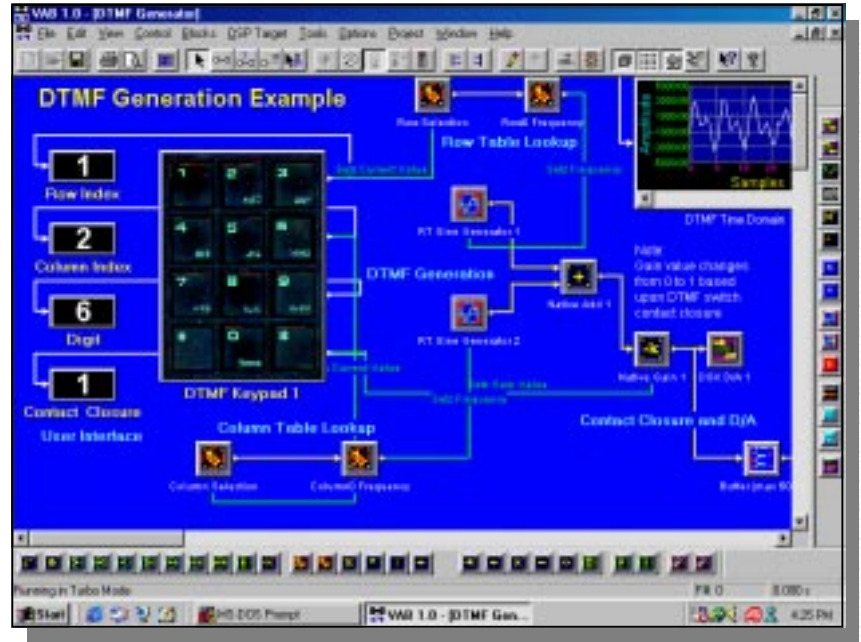
Summary

These turnkey DSP Education Kits are a great low-cost way to field a complete cutting edge DSP Lab. **Packed with many lab examples, and including all required hardware and software necessary,** never has it been this easy to include real-time DSP at a level students can learn from and appreciate!

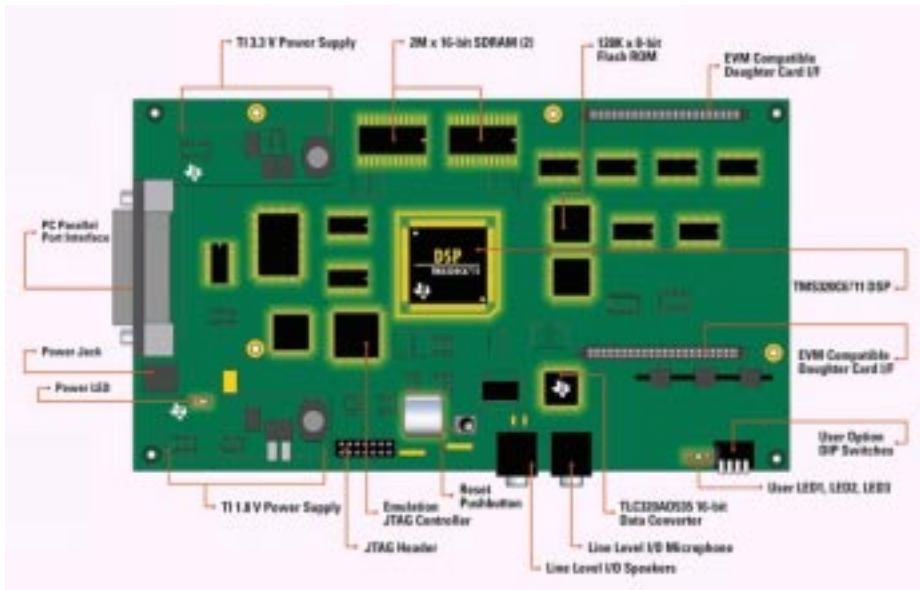
DSP Software Details

The VAB software included in the DSP Education Kits has been derived from software costing thousands of dollars and benefits from over a decade of engineering and feedback. The driving goal of VAB is for the student to be able to easily load examples and create their own applications which run on the DSP, without needing prior courses in Assembly Language, C Software coding, or DSP debugging.

The special version of VAB is a subset of the actual VAB software used by engineers in commercial industry for design of real world DSP applications. The ability to work with live signals is an important part of the interactive nature considered important to VAB for teaching purposes; the students ability to understand the concepts being taught is reinforced with actual real world signals.



An example of DTMF Generation running in real-time on actual DSP hardware



Hardware overview of HSKT0467 (others similar)

DSP Hardware Details

The hardware included in the DSP Education Kits consist of a DSP based board with analog to digital (A/D) and digital to analog (D/A) converters, which allow for live audio signals to be processed. A microphone and powered speakers (included) directly connect to the DSP board for easy real world signal interface.

Additionally, FLASH memory exists and can be programmed (HSKT0467) to allow the DSP hardware to function in a stand-alone mode after the students have loaded an example or created their own real-time DSP application with the VAB software.

Key Features & Advantages

- Low Cost, turnkey solution
- Includes industry standard DSP boards with analog I/O
- Includes VAB software to graphically construct algorithms, applications without C or Assembly
- Turns a PC into a state-of-the-art real-time DSP workstation
- Adds an excitement factor to teaching DSP and related areas
- Part of the Texas Instruments' University Program, Infinity project
- Subset of a product which has been in industry for over 10 years
- Pre-defined worksheets in VAB support a number of relevant engineering areas
- Robust function library allows many different application areas to be addressed
- Used by schools all over the globe
- Direct object, flash programming of the DSP hardware
- Book by Prentice Hall supports teaching with VAB for University



DSP Lab in a Box!

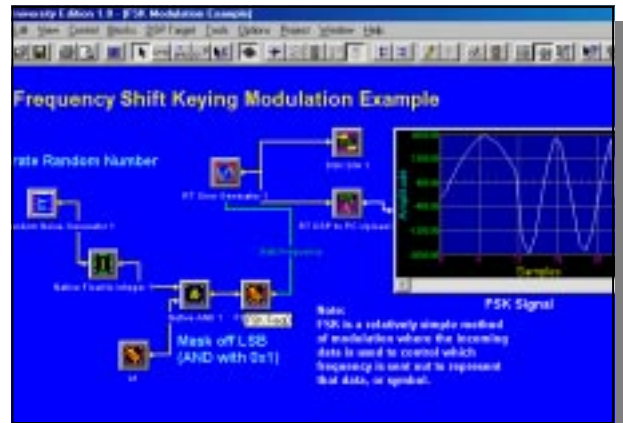
If you are considering setting up a DSP Lab for your school, these kits are a great way to get your lab up and running quickly, easily, and cost effectively. Each kit is a complete turnkey station, requiring only a PC running Windows (Windows 95, 98, NT, 2000, ME) to make a complete DSP workstation.

Support for image processing is even included to allow direct interface to low-cost PC based color CCD cameras (web cams); live video processing is certainly exciting for the students to interact with, and helpful to reinforce DSP concepts related to image processing.

Contact Hyperception and discuss with one of our application engineers how these DSP Education Kits might help you and your school in teaching the next generation of engineers.

Teacher Benefits

- Provide students with a positive "hands-on" DSP experience to increase the "excitement factor".
- Allow students to quickly implement DSP fundamentals on DSP hardware -- without having to write any C, assembly, or script source code.
- Expose students to leading-edge DSP design tools being used in industry world-wide.
- For advanced courses, students can use the Block Wizard tool to create their own DSP algorithms thereby leveraging traditional programming techniques (C, assembly) and then use them in the VAB graphical design environment.
- The Low-Cost of these Kits allow for an effective means of upgrading existing PCs into a leading-edge DSP Lab.
- The DSP Education Kit provides an intuitive, component-based DSP design environment that minimizes the steep learning curve typically associated with real-time DSP



Many real-time examples are included which run directly on the included DSP hardware

Application Areas supported by included DSP Examples

To assist the teacher in the course, **over 175 example worksheets are included** in the DSP Education Kits. These address a number of engineering related areas in which DSP's are used.

Of course, the teacher and/or student can make virtually limitless additional examples.

Some of the areas include:

- Communication**
- Modulation, Demodulation
 - FSK, PSK
 - Noise Analysis
 - Heterodyning, Mixing

Information Processing

- Signal Compression
- Digital Filtering
- Feature Extraction
- Quantization Effects

Pro Audio

- Audio effects, etc.

Digital Music

- Synthesis of Instruments
- Analysis of Music
- Digital Production of Music

Image Processing

- Image construction, Analysis
- Two Dimensional Filtering
- Image Manipulation

Speech Processing

- Speech Analysis
- Filtering

Machine Vision

- Object Detection
- Image Thresholding
- Object Tracking

For more information, please contact:

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Ordering Information

DSP Target	Description	P/N
TMS320C6711	DSP Education Kit with 6711 DSK	HSKT0467
TMS320C5402	DSP Education Kit with 5402 DSK	HSKT0454
TMS320C31	DSP Education Kit with C31 DSK	HSKT0431

Please note: if you already have TI DSK hardware, contact Hyperception for information on obtaining only the VAB for University Software.

