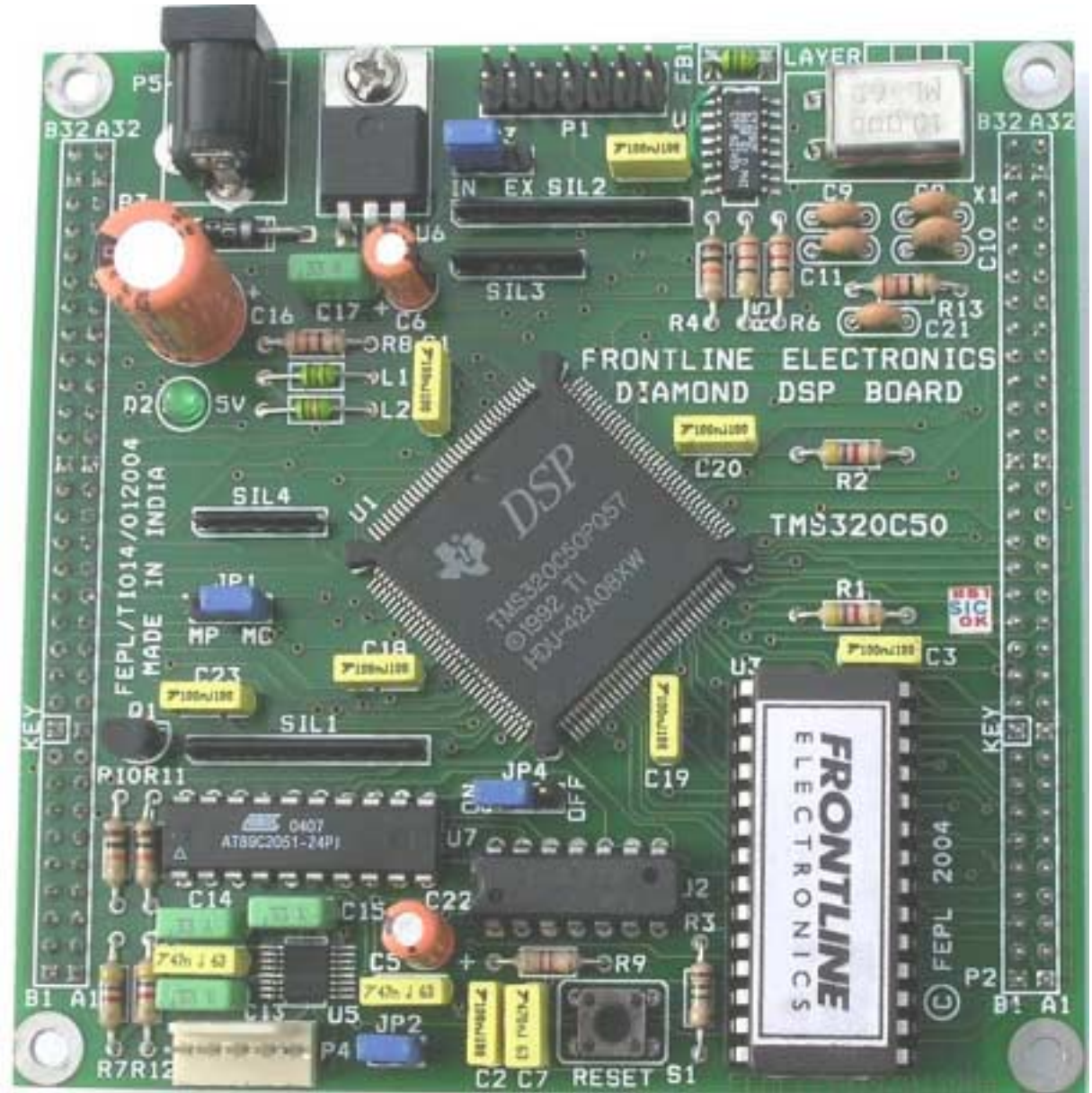
World's Cheapest

DSP Solution

for Real Time Applications.



DSP Diamond Boards

The DSP Diamond Boards are meant for the real time applications using the popular DSP devices, TMS320C50, TMS320C31 and ADSP2181. The DSP boards contain the respective DSP device and the relevant memory space to keep the application code. The board sports the proper clock circuits, power supplies and other support electronics. All the bus lines are properly terminated at the suitable connectors. User can embed this DSP Diamond board in his/her target application with ease and confidence.

This powerful DSP hardware is supported with state of art debugging facilities that make the program development as very ease one. Also, the availability of the plenty of examples enables even the first time users get a quick start with this exciting technology.

This powerful combination of hardware and the debugging features is the world's cheapest DSP solution designed for serious real life applications. No such solution is available anywhere for this price.

These DSP Diamond boards are complemented by the respective peripheral boards that come with a range of facilities to undertake DSP projects in laboratory, industrial applications.

In short, these DSP Diamond boards are irresistible choice to any one thinking of getting into the DSP technology.

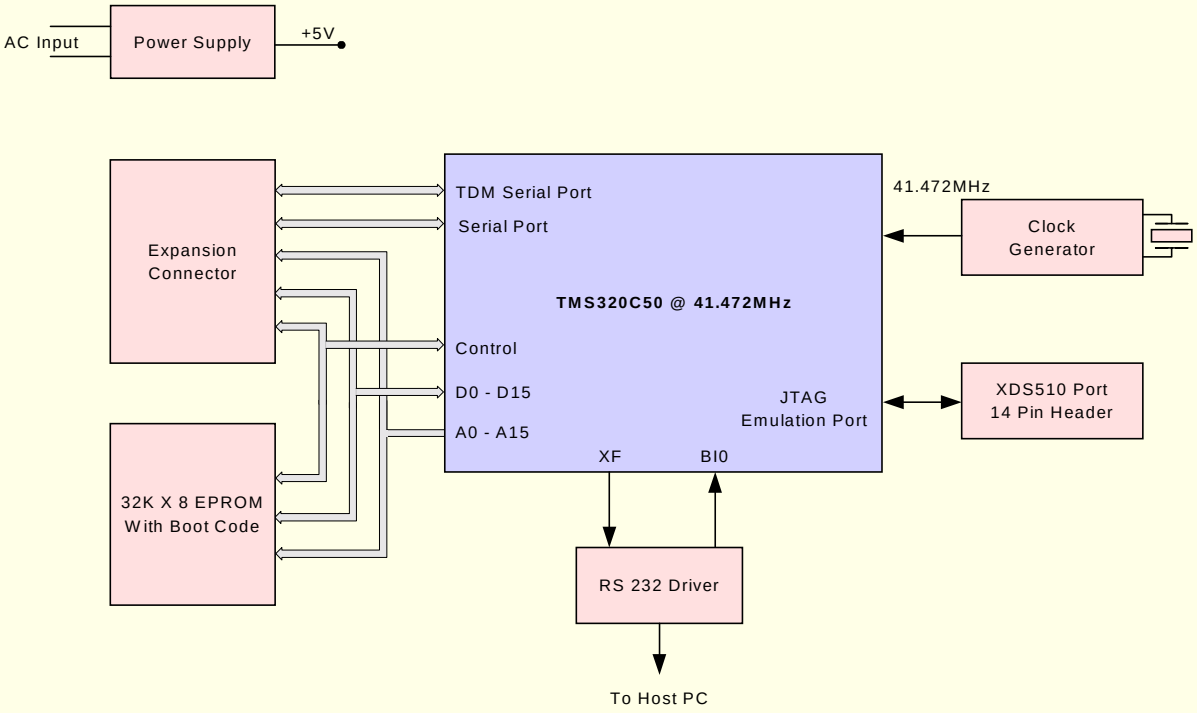
C50 Diamond Board

This is the basic hardware based on TI's popular DSP device, TMS320C50 operating at about 40MHz. The board comes with the required clock circuitry and the power supply.

Specifications.

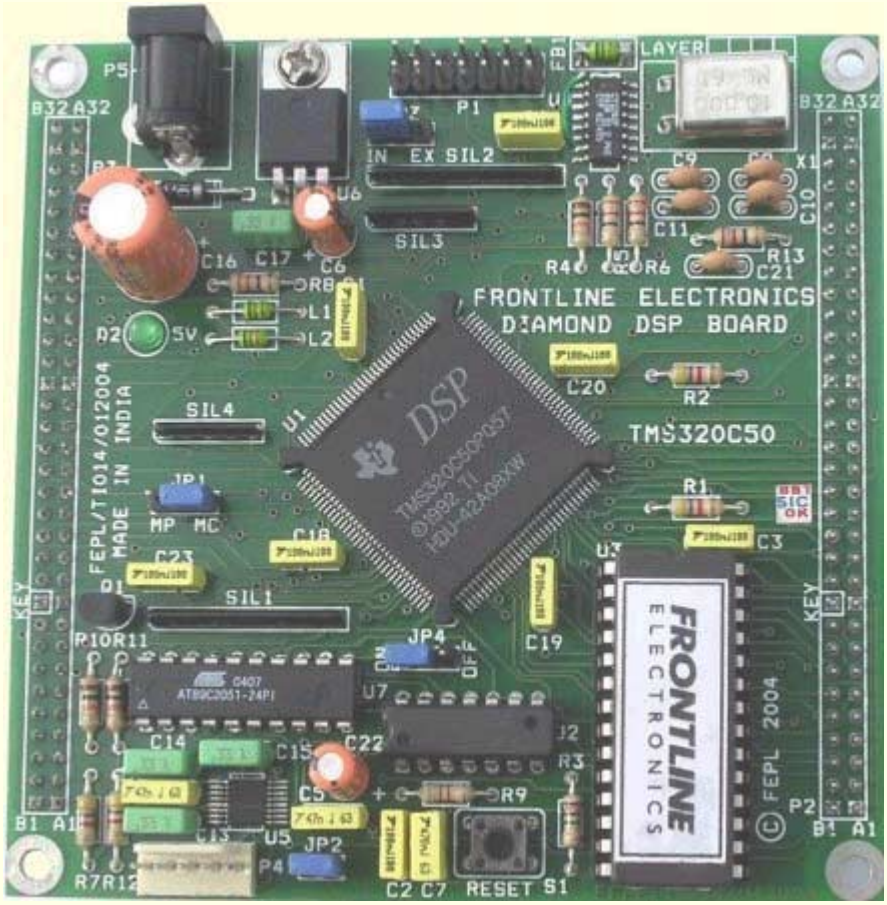
- TMS320C50 operating at 41.472KHz.
- On-chip RAM area : 10K word.
- Board sports booting EPROM socket with capacity upto 32Kbyte. This EPROM also provides kernel meant for communicating with the computer.
- Serial port with built-in RS232 drivers.
- JTAG interface to connect Emulator.
- On-board clock generator.
- On-board power supply.
- Two numbers of 64pin expansion connector to interface external hardware.
- Multilayer PCB to make it reliable in noisy industrial applications.
- Diamond Board comes with powerful Debugging software, Topview DSP Debugger with GUI features.
- PCB size : 10cm x 10cm.

C50 Diamond Board



C50 Diamond Board Block Diagram

C50 Diamond Board

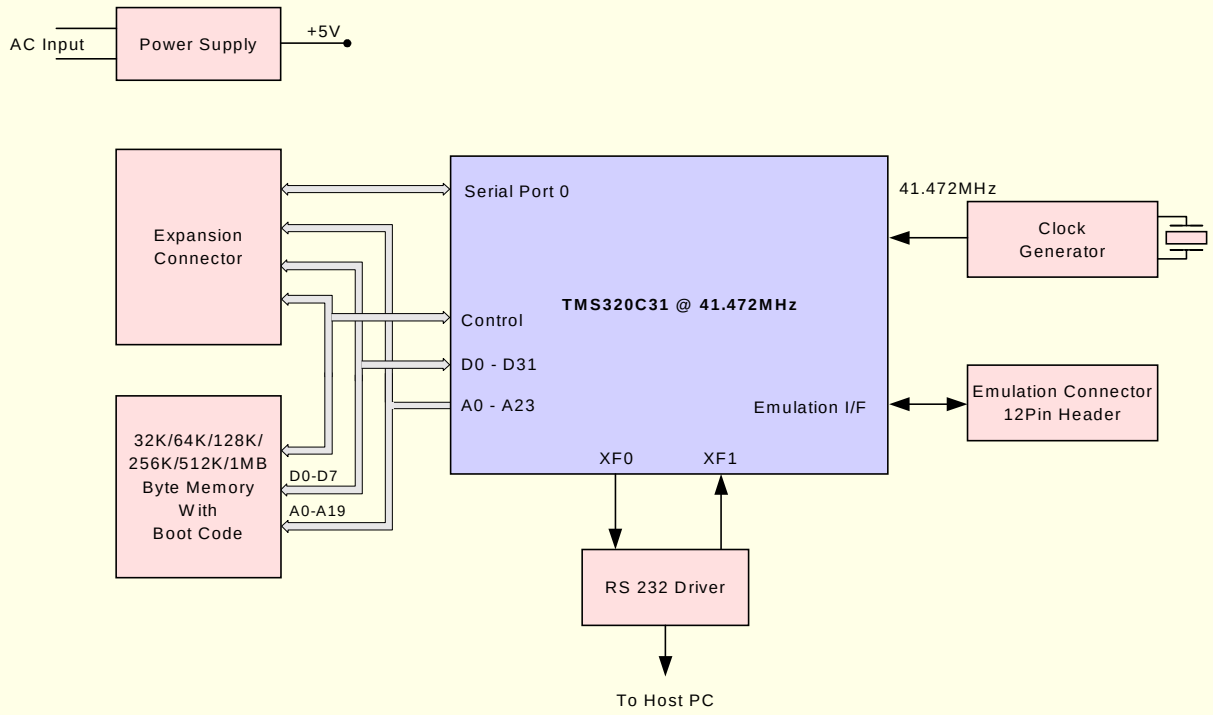


C31 Diamond Board

This DSP Diamond board sports the most popular Floating Point DSP from TI's stable, TMS320C31. The board also provides the required freedom to the designers to take the DSP advantage to many demanding applications. As usual, this DSP comes with the required clock circuitry, power supply and booting facility.

Specifications.

- TMS320C31 operating at 41.472MHz.
- On-chip RAM : 2K X 32 Single Cycle Dual Access RAM.
- Booting facility : 32Kbyte EPROM with communicating kernel meant for the computer. This memory capacity can be expanded upto 1Mbyte.
- Emulator interfacing facility.
- Serial port with built-in RS232 drivers.
- On-board clock generator.
- On-board power supply.
- Two numbers of 64 pin expansion connectors to interface external hardware.
- Multilayer PCB to make the board reliable in noisy industrial applications.
- Diamond board is supported by Topview DSP Debugger which provides powerful facilities in a GUI environment.



C31 Diamond Board Block Diagram

C31 Diamond Board

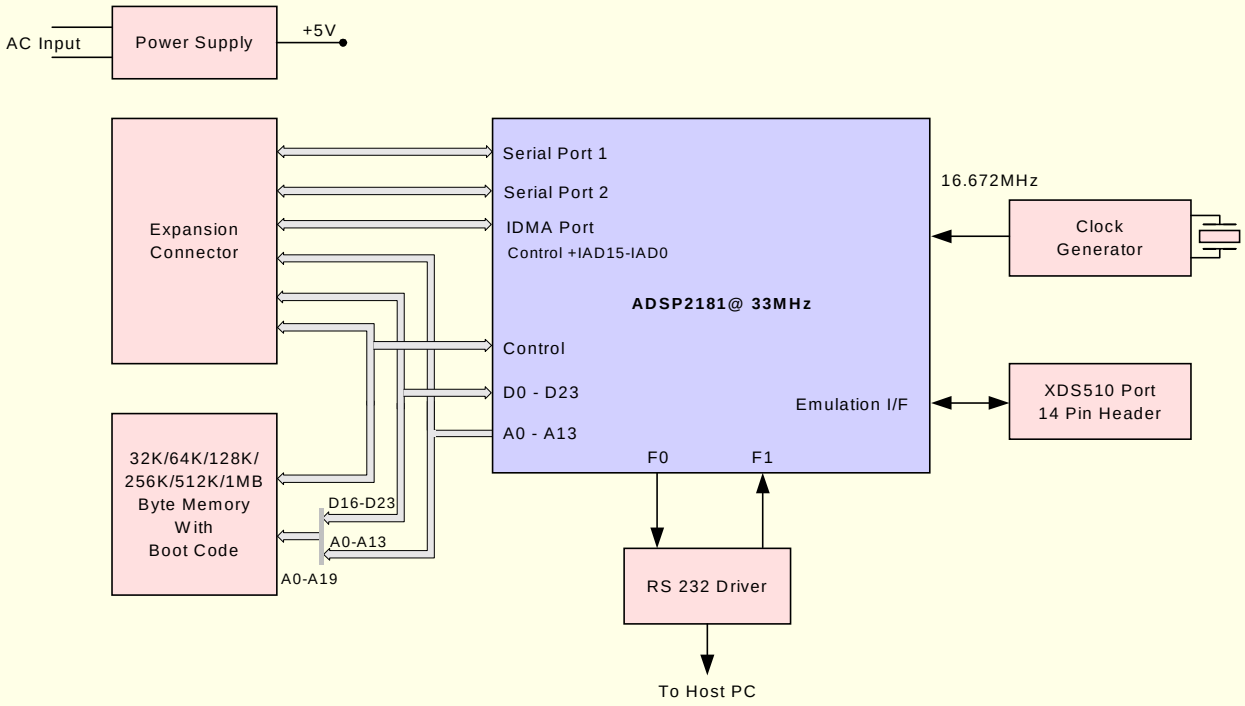
ADSP2181 Diamond Board

This is the lowest cost ADSP2181 based solution for embedding Analog Device's popular fixed point DSP in demanding applications. The board comes with enough booting memory space and also the clock circuitry, power supply and other related support electronics.

Specifications.

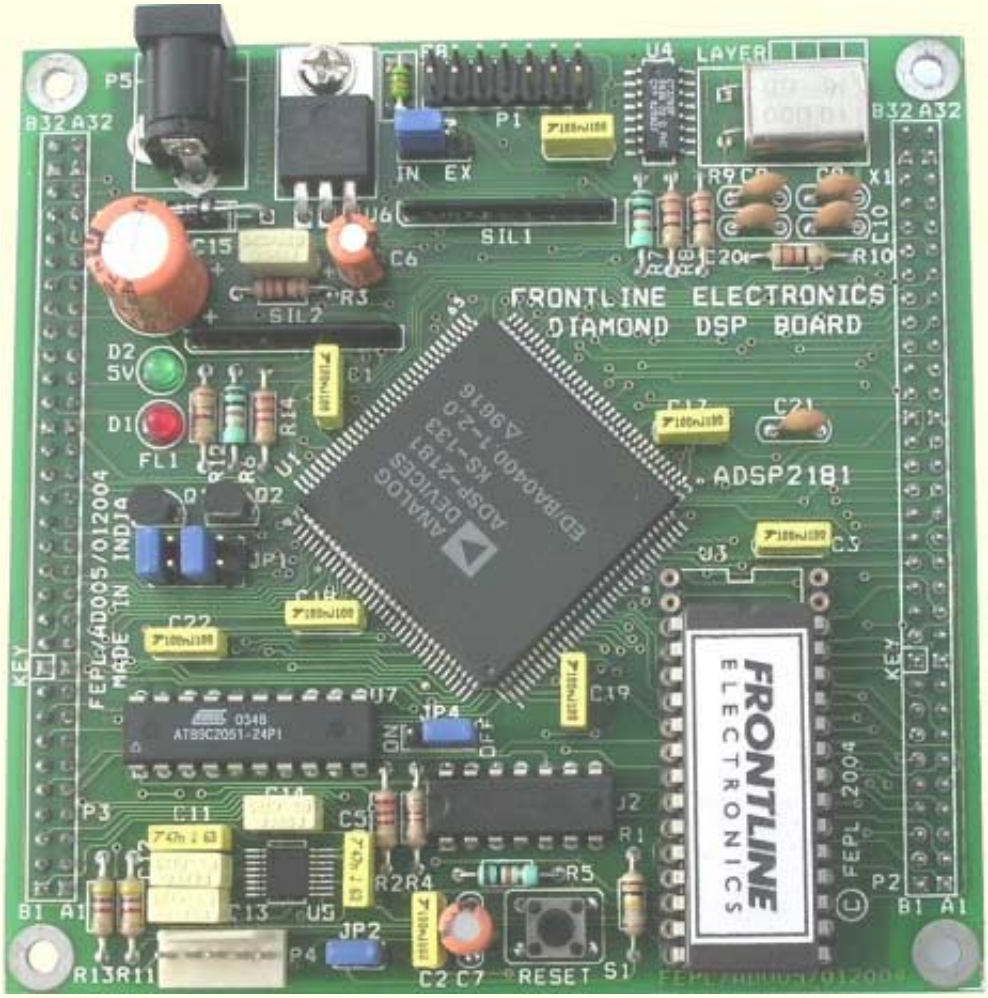
- ADSP 2181 operating at 33MHz.
- On-chip Program Memory : 16K X 24 and Data Memory 16K X 16.
- Boot EPROM : 32Kbyte / 64Kbyte with communication kernel. This boot memory can be expanded upto 1Mbyte.
- On-board Emulator interfacing facility.
- RS232 serial port for communicating with the host PC.
- On-board clock generator.
- On-board power supply.
- Two numbers of 64 pin expansion connectors to interface external hardware.
- Multilayer PCB to make this board reliable one in noisy industrial applications.
- Diamond board is supported with the Topview DSP Debugger that provides state of art features in a GUI environment.
- PCB size : 10cm X 10cm.

ADSP2181 Diamond Board



ADSP2181 Diamond Board Block Diagram

ADSP2181 Diamond Board



C50 Peripheral Board

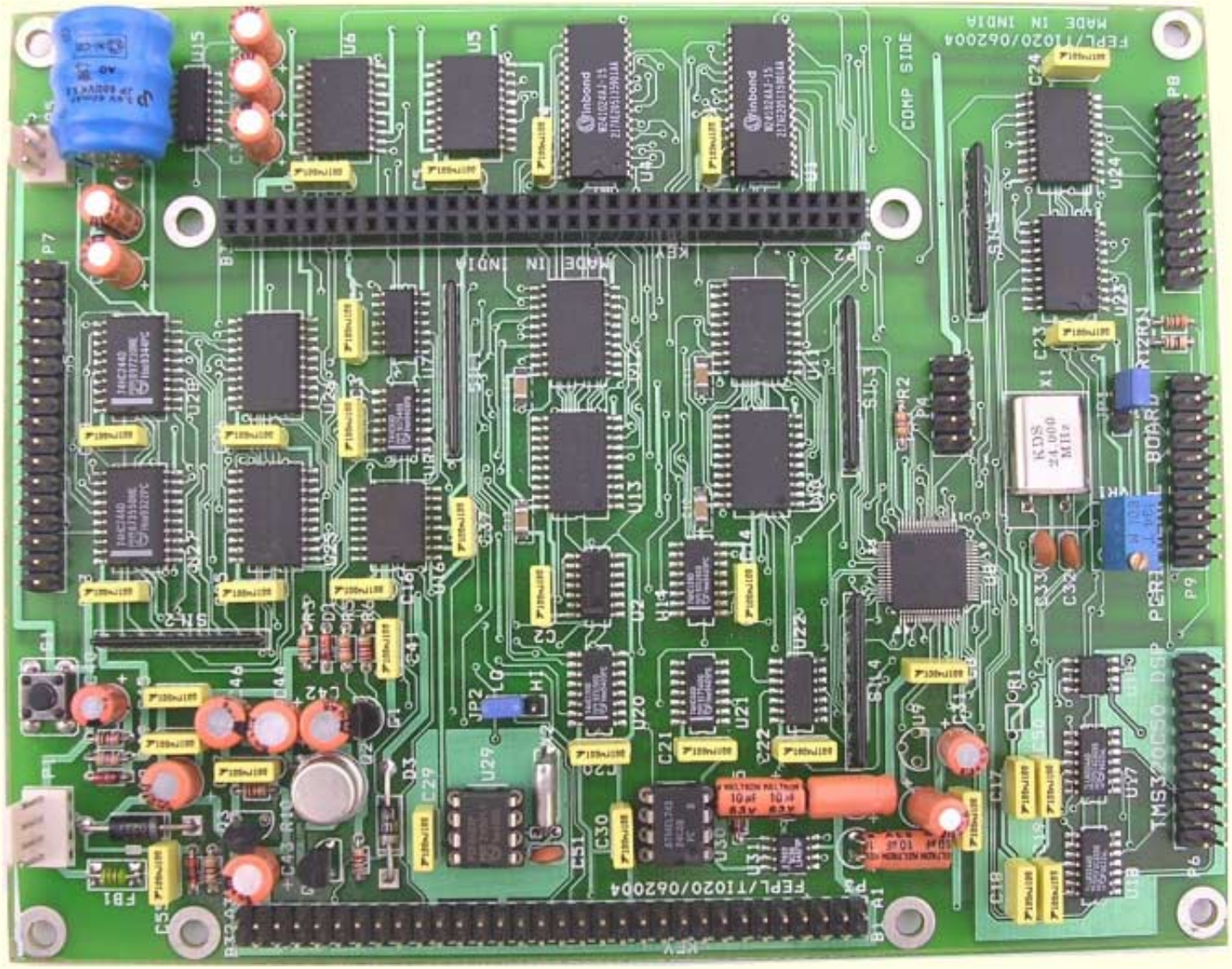
This is the add-on meant for the C50 Diamond Board with many industry specific features to design and implement the DSP solutions in many demanding applications.

This peripheral board is designed around using a customized interface device that provides many facilities covering a range of applications.

Specifications.

- Zero wait state 64K X 16 Program Memory and 64K X 16 Data Memory with fool-proof battery backup.
- 12-bit ADC with programmable sampling rate upto 93.6K samples.
- 8 Channel single ended Analog Inputs.
- Programmable Gain Selection : 0.5, 1, 2, 4, 8, 16.
- Analog Input voltage range : 0-2.5V.
- 2 Channels of DAC with 100KHz sampling rate. Output range : 0-2.5V
- On-board Real Time Clock with battery backup.
- On-board EEPROM with 16Kbyte capacity. Can be expanded upto 128Kbyte.
- Facility to connect key matrices upto 8X8 (upto 64 keys).
- Facility to interface character and graphic LCD modules.
- 16 Digital input lines and 16 Digital output lines.
- Secondary RS232 port with 57.6K baudrate.
- The peripheral board communicate with the Diamond board through 16-bit I/O bus.
- All port lines, interfacing lines are properly terminated in suitable connectors.

C50 Peripheral Board



C31 Peripheral Board

This is the add-on board meant for the C31 Diamond board meant for embedding DSP technology in a range of demanding applications.

Specifications.

- Zero wait state 128K X 32 SRAM with battery backup.
- 12-bit ADC with programmable sampling rate into 93.6K samples.
- 8 Channel single ended Analog Inputs.
- Programmable Gain Selection : 0.5, 1, 2, 4, 8, 16.
- Analog Input voltage range : 0-2.5V.
- 2 Channels of DAC with 100KHz sampling rate. Output range : 0-2.5V
- On-board Real Time Clock with battery backup.
- On-board EEPROM with 16Kbyte capacity. Can be expanded upto 128Kbyte.
- Facility to connect key matrices upto 8X8 (upto 64 keys).
- Facility to interface character and graphic LCD modules.
- 16 Digital input lines and 16 Digital output lines.
- Secondary RS232 port with 57.6K baudrate.
- The peripheral board communicate with the Diamond board through 16-bit I/O bus.
- All port lines, interfacing lines are properly terminated in suitable connectors.

ADSP2181 Peripheral Board

This add-on board enables the user to get a proven and low cost DSP solution suitable for a variety of applications.

Specifications.

- Zero wait state high speed byte memory of capacity, 256Kbyte, with battery backup.
- 12-bit ADC with programmable sampling rate into 93.6K samples.
- 8 Channel single ended Analog Inputs.
- Programmable Gain Selection : 0.5, 1, 2, 4, 8, 16.
- Analog Input voltage range : 0-2.5V.
- 2 Channels of DAC with 100KHz sampling rate. Output range : 0-2.5V
- On-board Real Time Clock with battery backup.
- On-board EEPROM with 16Kbyte capacity. Can be expanded upto 128Kbyte.
- Facility to connect key matrices upto 8X8 (upto 64 keys).
- Facility to interface character and graphic LCD modules.
- 16 Digital input lines and 16 Digital output lines.
- Secondary RS232 port with 57.6K baudrate.
- The peripheral board communicate with the Diamond board through 16-bit I/O bus.
- All port lines, interfacing lines are properly terminated in suitable connectors.

DSP Project Board

The DSP Project Board is meant for developing the application specific hardware using the Diamond Board. The Project Board comes with suitable connectors to hold the Diamond Board along with sufficient proto area.

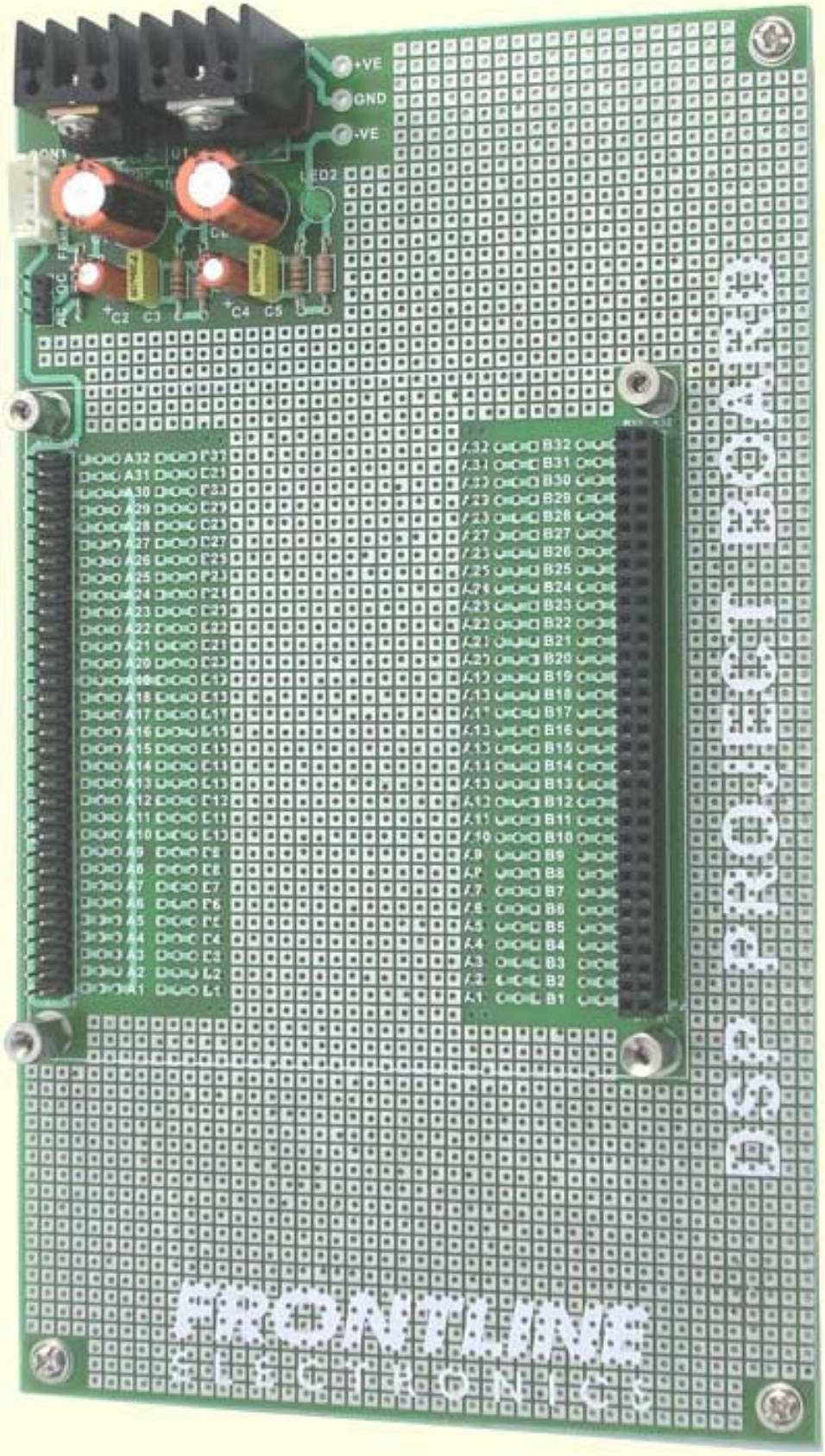
This DSP Project Board enables the users to take up their projects immediately after opening the pack.

The DSP Project Boards is the complementary to every DSP Board and not available separately.

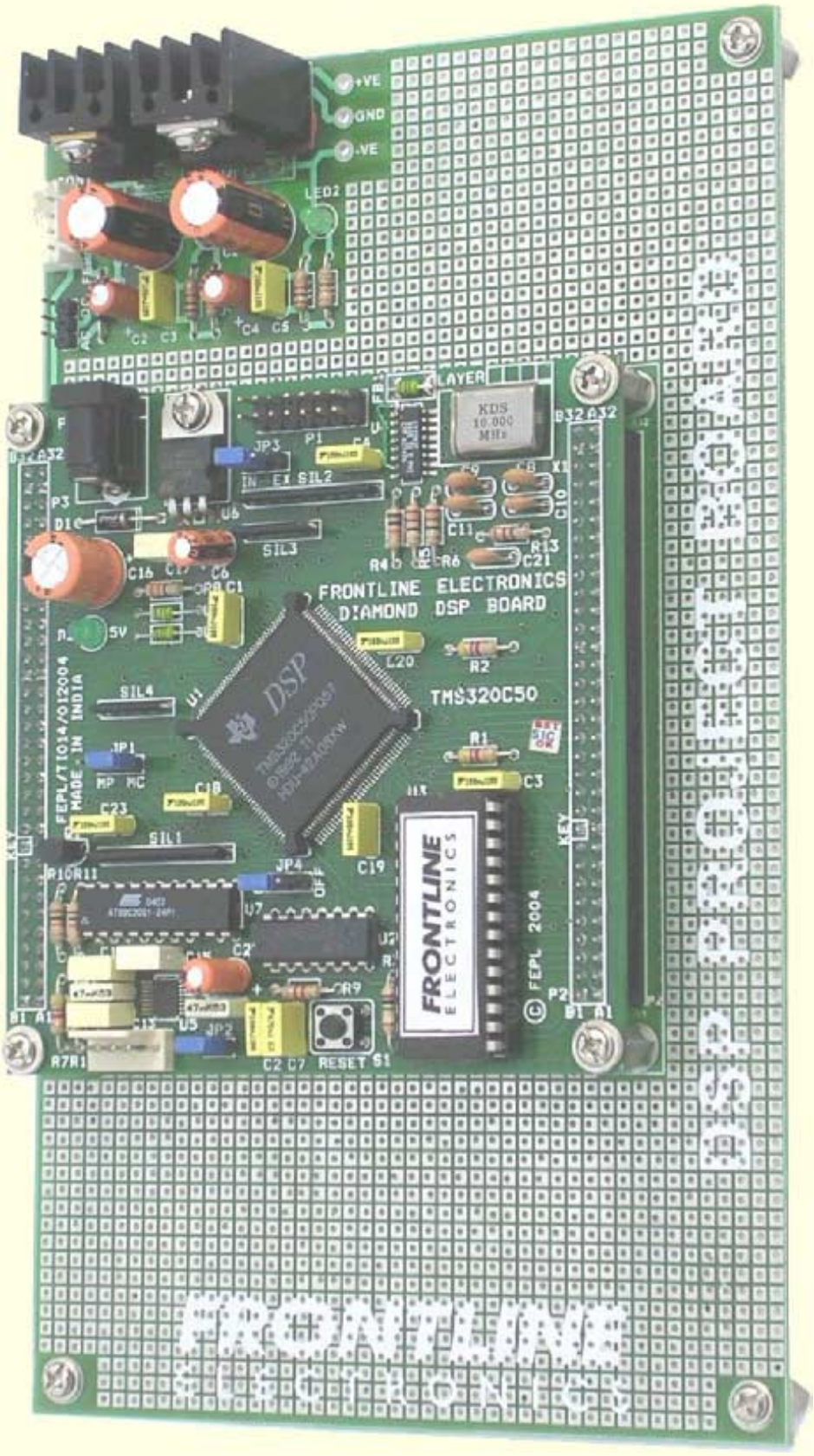
- DSP Project Board holds the Diamond Board using the suitable connectors.
- Sufficient proto area is available to develop specific hardware.
- Facility to include two DC Power Supplies in your application.
- You can use upto 40pin Dip devices as well as PLCC sockets.

We are planning to release many application notes using the Diamond Boards and the Project Boards. Keep visiting our website for more useful information.

DSP Project Board



DSP Project Board

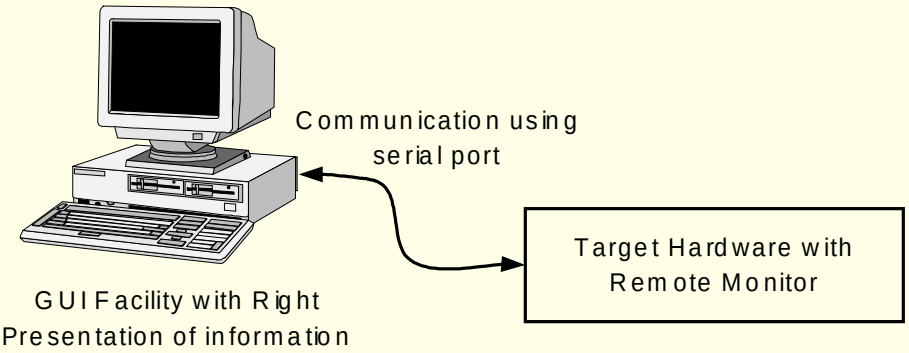


Introduction to DSP Debugger

Topview DSP Debugger is an important facility meant for developing TMS320C50 based embedded solutions. Debugging is an inevitable part in any tool suite required to develop applications in real time. A right debugging tool may save a lot of development time in any product development process.

An exclusive version of Topview Debugger is made available for the DSP Starter kits and the Evaluation modules using TI's popular fixed point processor, TMS320C50.

This Debugger is a two part program in which major part stays inside the DSP hardware and keeps track of internal operation of the C50. This information is later transferred to the host computer to which it is connected. Since it is residing in the target hardware, sometimes it is also called 'Remote Monitor'



Second part of the debugger operates in the host computer and is responsible for presenting the information received from the target DSP hardware in a most useful format using a GUI environment.

When you establish a reliable communication link between the DSP hardware and the host personal computer, the Topview Debugger automatically comes into action.

The Debugger presents a GUI environment in which the ClearView Window structure gives facility for viewing complete information on the internal working of the C50.

Debugger sports following features

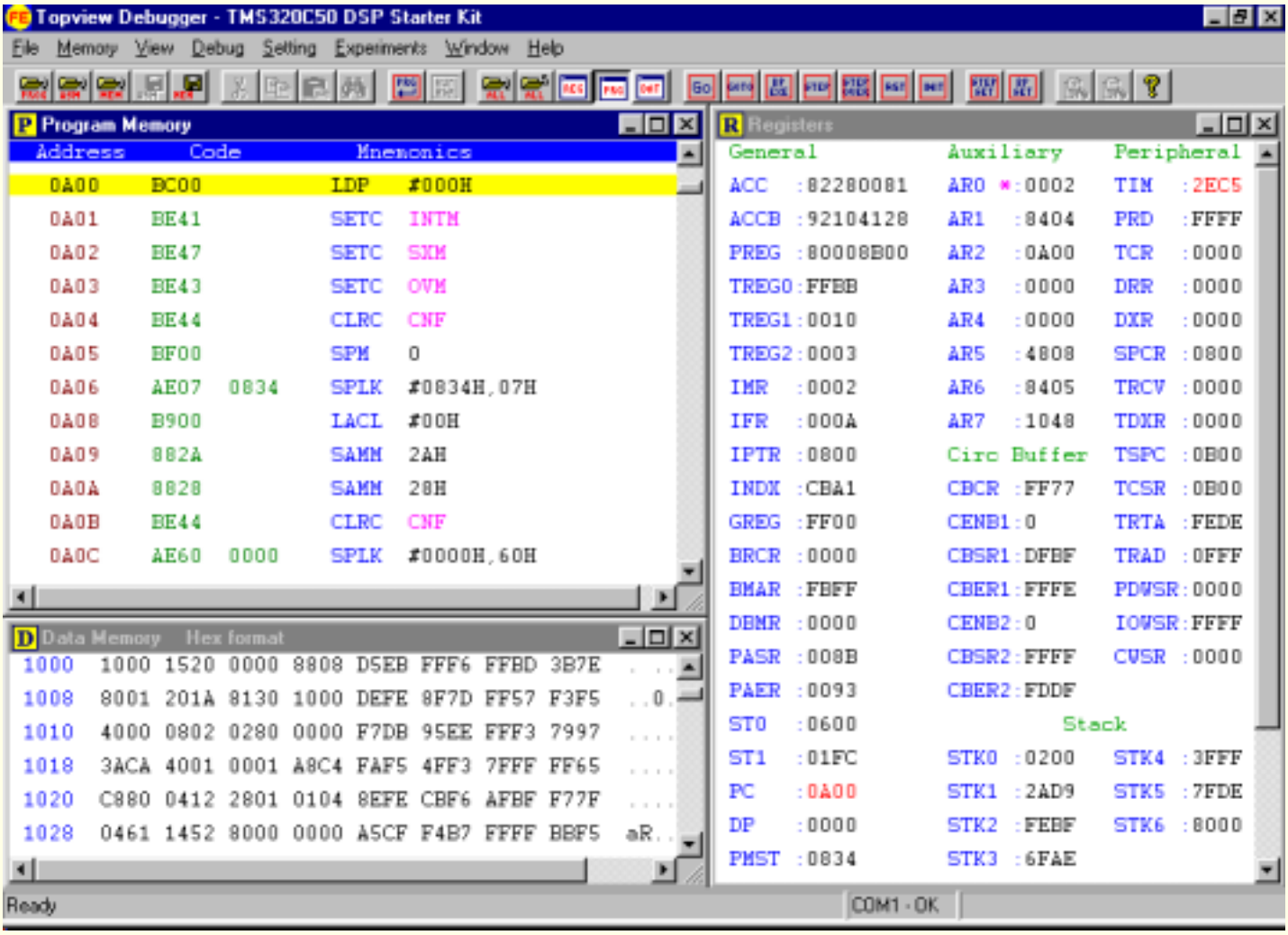
- ClearView Window structure.
- Facility to develop target program code.
- Powerful program execution features.
- Graphical facility to generate Time Domain and Frequency Domain Waveforms.
- Built-in program examples.

Introduction to DSP Debugger

Each of these facilities are meant to give the DSP user the required power to study the field proven DSP hardware, then undertake DSP experiments to sharpen his/her knowledge and impart required confidence to undertake DSP based applications with ease.

ClearView Window Structure

This is an optimized structure where windows are strategically placed in the display. Total display area is divided into three parts, which display the program lines, contents of the data memory and the contents of all the internal registers.

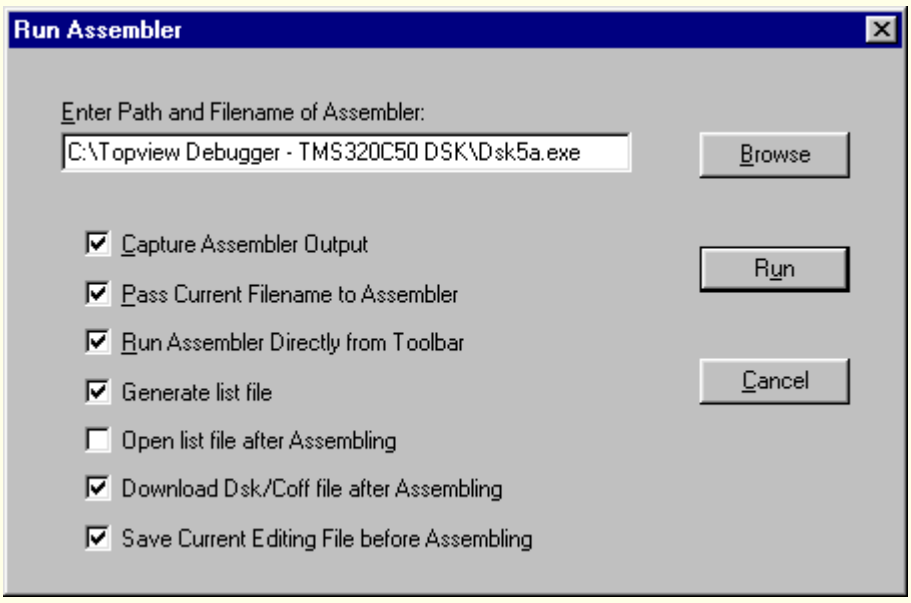


Developing Target Program Code

Topview Debugger enables you to develop your target program code in convenient ways. The powerful built-in editor gets your raw program code and calls an external assembler software and pass the edited program into that for assembling.

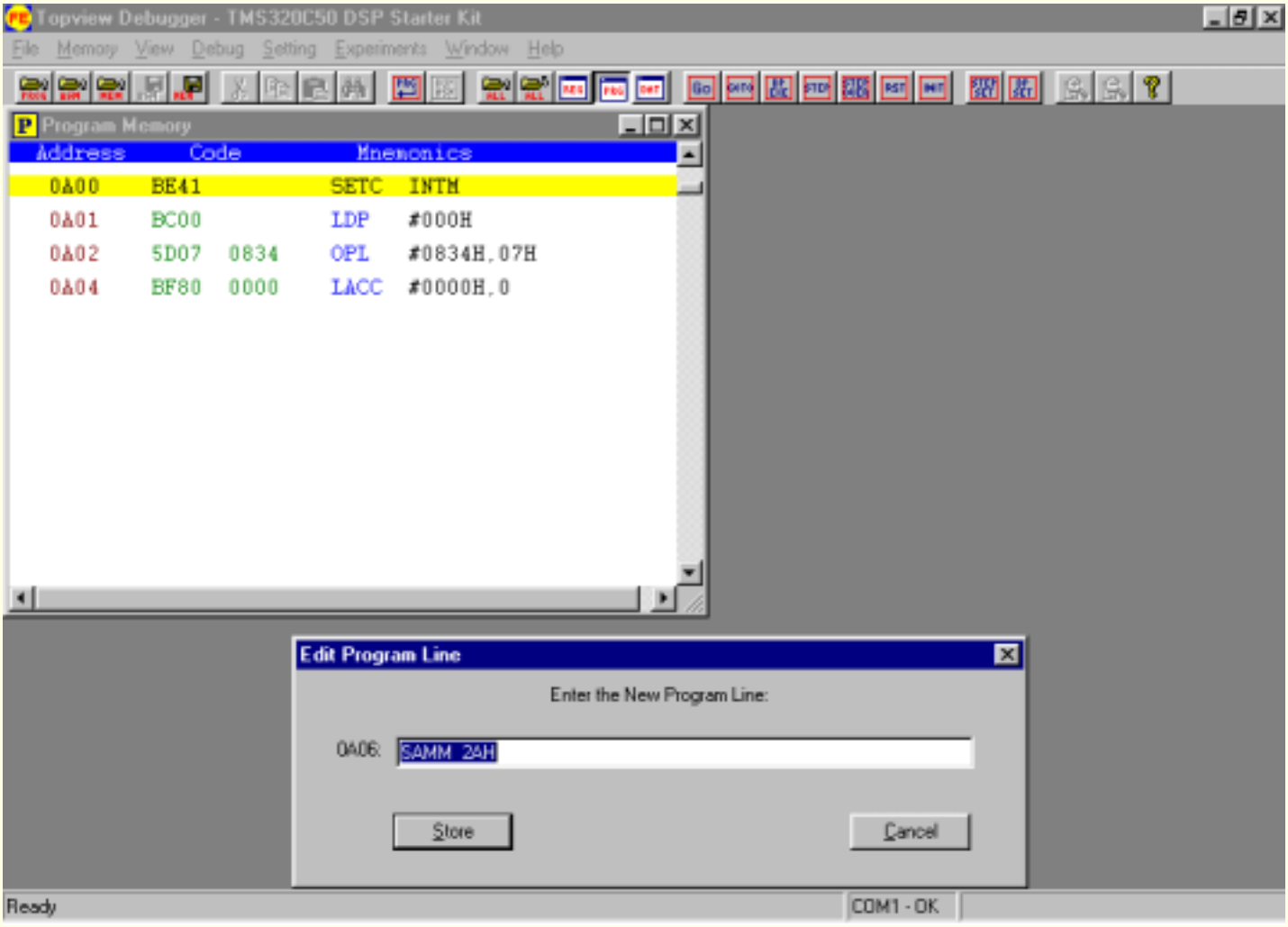
The assembler output can be captured and viewed along with your input program in the editor. Also, viewing the list file (coming out of assembler) by the side of input assembly file enables you to view the details of error and the location. You can easily correct input file errors before assembling it again. Useful feature when troubleshooting the program.

There is an optional facility to load the assembled program into the specific DSP program memory space.



Debugger also sports a single line assembler in which you can activate the program memory window and key in program lines one by one.

Introduction to DSP Debugger



Program Execution Facilities

Topview Debugger gives you the power to execute your target program code in a variety of ways to suit your needs.

- Free running program execution.
- Program execution using multiple breakpoints.
- Executing program in single steps.
- Facility to execute CALLS in single steps.

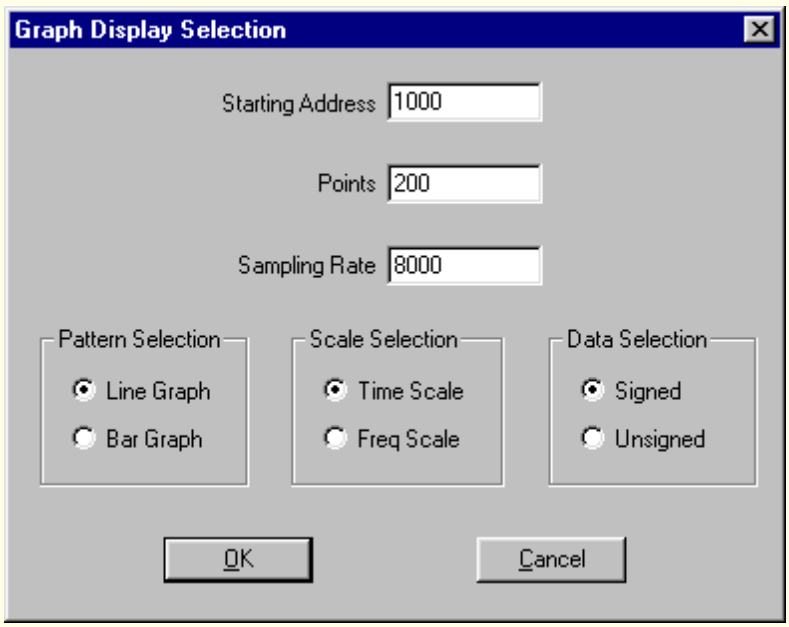
During each execution, the ClearView updates all the relevant windows and present changed contents in different colors to draw your attention.

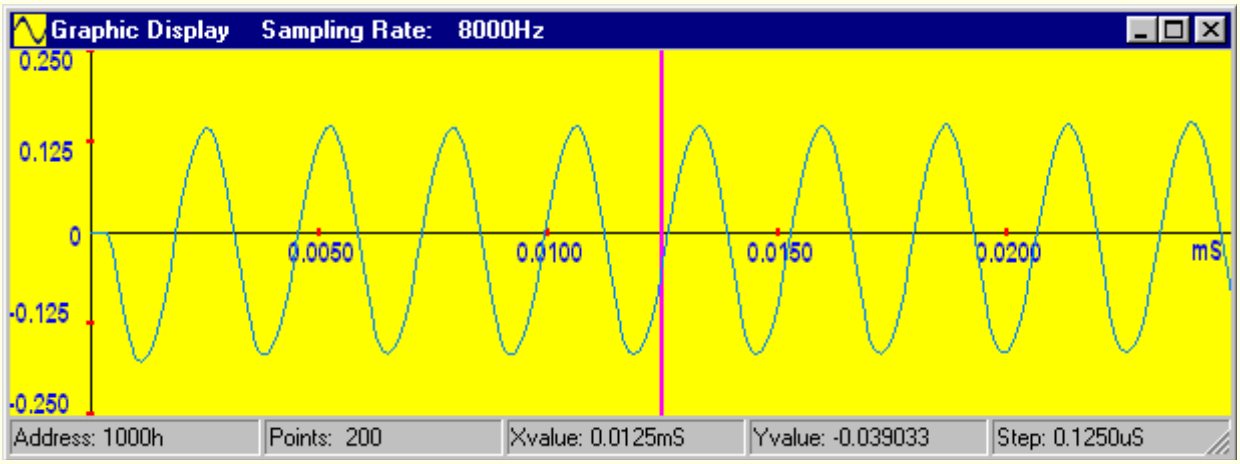
These facilities will become very helpful when developing complicated program codes.

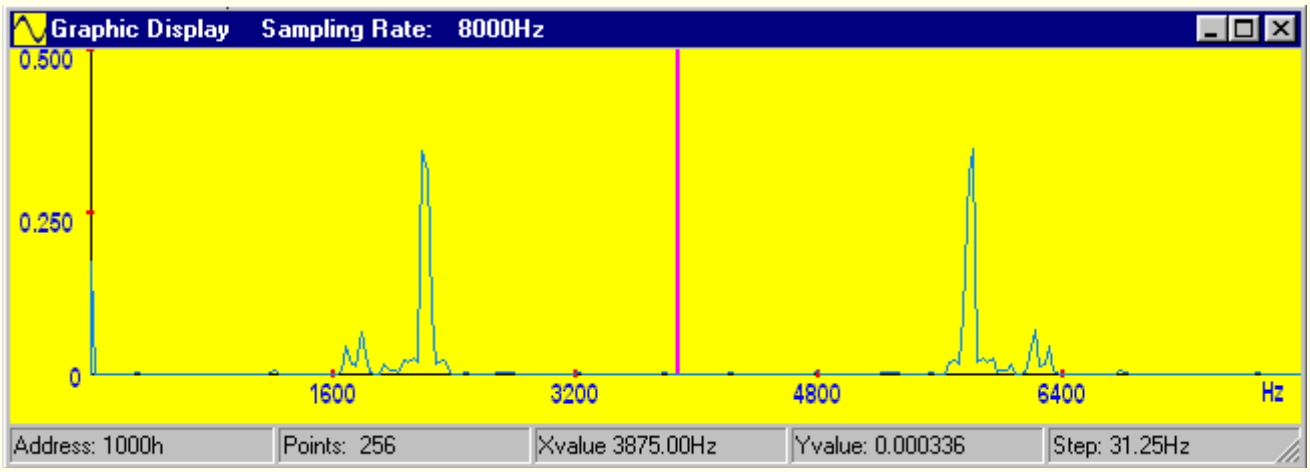
Introduction to DSP Debugger

Graphical Facility to generate Time Domain and Frequency Domain Waveforms.

This is another useful feature in which you can convert the sampled data into meaningful waveforms. You can generate both Frequency Domain and Time Domain Waveforms. These graphical windows are complete in all respects and you can read any coordinate of the waveform by just moving the mouse cursor.







You can generate line graphs and bar graphs. Zoom in/out facilities are also available. You can even print out this waveform using any standard printer.

Built-in Program Examples

Since the DSP subject is a complicated one, the debugger comes with a lot of tested and proven examples to give you a quick start in learning the DSP algorithms. These examples cover a wide range of algorithms.

Download

Topview DSP Debugger Software User Guide will be made available in our website for your reference.

Pricing Information

For Indian Customers.

1. Cost of DSP Diamond Board for TMS320C50 / TMS320C31 / ADSP2181 (With Complementary DDP Project Board) - Rs. 8,500.00

2. DSP Peripheral Board for any Diamond Board - Rs. 12,000.00

Other Terms.

a. Taxes are extra as per actuals.

- 12% TNGST and 5% SC @ ST (For Tamilnadu)
- 12% CST and 5% SC @ ST (Other than Tamilnadu)
- 4% CST and 5% SC @ ST with form C (Other than Tamilnadu)
- Any other taxes are extra as per actuals.

b. Shipping

Materials can be sent by Speed Post / Courier. Shipping charges are extra as per actuals.

We prefer sending materials by Speed Post. For this, we need the total money as advance. Kindly add Rs. 150/- towards the shipping. We also need form C along with the order for the tax concession.

If necessary, we can ship the materials by the courier on COD basis.

c. Delivery Time:

At present it is 2 weeks. We hope to reduce this to 1 week in the near future.

Pricing Information

For International Customers (All pricing in US Dollars).

1. DSP Diamond Board for TMS320C50 / TMS320C31 / ADSP2181 (With Complementary DSP Project Board) - $200.00

2. DSP Peripheral Board for any Diamond Board - $300.00

- DSP Boards can be shipped to anywhere.
- DHL/FedEx can be used.
- Shipping charges are extra as per actuals.
- Call for more detailed shipping charges.

Contact

We keep all relevant information on DSP Products, Tools and Development Software packages in our website, www.Frontline-Electronics.com. You can download the required details for your reference.

You can also send an email to feplslm@frontlinemail.com for any specific information/clarification. Always it is our pleasure to take an extra step to meet your exact needs.

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