PAWS Users Group Newsletter

Volume 20 No. 1 **March 2003**

We apologise for the delayed production of this long requested Newsletter! We have been quite busy the last year. I believe that you will concur as you read on.

Program News

We are continuing to make deliveries on all the major DoD programs as well as the multinational programs in Europe. Recently the RTCASS program has released the production phase competition and we are in contact with most if not all of the leading contenders. With some 140+ systems, this is indeed a major milestone for PAWS. TYX is pleased to announce that we supported USN personnel in the creation of their own RTCASS GUI for the PAWS RTS Server product. This demonstrates the benefits of open architecture software to the maximum, as the ultimate proof is the user's ability to add plug-in customized modules to the COTS offering.

We are pleased to announce that the USAF selected the PAWS solution and the services of our Engineering services partner, Access Research Corporation (ARC), for the continuation of the E-35 Program. Our team demonstrated the ability to re-host the existing ATLAS TPSs. The effort will save the customer the extensive cost of redeveloping these complex TPSs in LabWindows/CVI. The customer has in turn selected the PAWS solution for a multi-year production contract. We have also been informed that another production contract is in the works for 38 systems on a proof of concept successfully demonstrated by the TYX/ARC team some time back.

The C-17 Depot Tester is currently being used to re-host TPSs' from the older B1 Tester. We are expecting further orders later this year, to augment the orders placed at the beginning of 2002. Last but no least, programs such as the Mil-Star APATS, and the E2C re-host are either underway or nearing completion.

PAWS in Europe

Our partner company SEKAS has assisted KMW (Kraus Maffei Wegmann) in the deployment of the first portable embedded controller for PAWS (using Windows NT embedded) used for system testing inside the Leopard II tank. The ATLAS programs were developed under the standard desktop PAWS Developers Studio and are executed by means of the PAWS RTS in the embedded target system. The target system is windows-based and controlled through 5 push-buttons only (no mouse, no keyboard) and a ¼-VGA TFT-Display. These user interface elements are controlled through a custom-made PAWS-IO-Subsystem server.

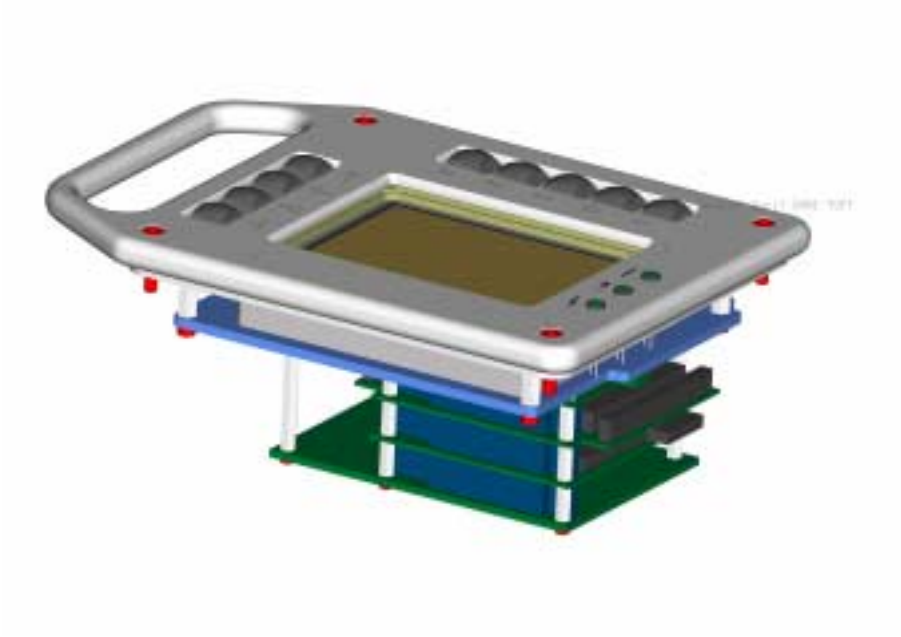

Figure 1. Control and Display Panel (CDP) for embedded PAWS RTS

The customer has now ordered some 20+ systems to date. We are expecting further orders as the embedded system being supported is further deployed. Additional installations will occur in Europe and other foreign countries.

The German Tornado re-host project is now in the production stage. The systems are in use with all the TPSs' on board for maintenance work. The PAWS technology leapfrog is highly appreciated by its users.

PAWS in the Far East

Our Far-Eastern operations are off to a good start this year, as we are awaiting orders from additional (new) customers in China. The Japanese are still proceeding with the E2C re-host, and in addition are actively pursuing a number of new major procurements.

ARC Support of TYX Products

Our participation in the CASS TPS off-load program through Access Research Corporation (ARC) continues to gain strength. ARC is a member of the Lockheed Martin team currently re-hosting legacy US Navy TPSs. They are also ensuring that certain re-hosted CASS TPSs meet the RTCASS compatibility requirement within the PAWS Developers Studio.

ARC is currently delivering EADS ATEC Testers to Honeywell for commercial programs. The ATEC systems support commercial TPSs developed for aircraft avionics. The ATECs support the Airbus fleet of commercial airliners.

ARC personnel are also active in the integration of FMS testers for USAF programs. Their diligent effort has resulted in the E2C production award as well as a couple of other follow on programs. ARC services help perpetuate PAWS products as a software standard for test systems.

TestBase News

TestBase systems have been in production use at a number of places in the US and abroad for some time now. Raytheon has successfully deployed it on the THAAD program. Late last year at Boeing Space & Satellite, we added HP-VEE to the repertoire of fielded adapters for TestBase. We are currently pursuing some major opportunities for this innovative product including some non-traditional users. As you will read later in the newsletter, TestBase supports embedded applications. Additionally, the RAFALE F2 optronics tester is using TestBase and ordering the first nine of many systems to come...

New Product Enhancements

The PAWS Developer's Studio project management capabilities have been enhanced for ease of use. The project file handling and the building engine were completely redesigned using a more flexible module approach. PAWS projects created in earlier versions are imported into the new format for backwards compatibility. A number of new features are available including arbitrary file directory locations, compilation options on menus and a new entry menu for adding files.

The entry menu *File/Add File to Project* was modified. For the previous versions of PAWS Developer's Studio, opening a file automatically added that file to the project. There is now a distinction between these two actions. Opening a file will only display it for reference or enable copy & paste operations. If the file type is known, the module is chosen automatically when possible. The user still may be asked to choose the module, if the type file is not recognized. The user can also access *Add File to Module* command from the context menu.

A PAWS Project may have zero or one module of ATLAS, DEVICEDB, SWITCHDB, ITADB types, and zero or more CEM modules. The project source files must be contained within these modules. The *Compile* option is available to build modules for a device, a switch, or an ita database. The *Compile* command can be accessed from either the tree context menu, PAWS standard toolbar or from the *Build/Compile* pull down menu. For each CEM module, a unique name and a location is specified upon creation. The building process on CEM modules generates a specific CEM DLL.

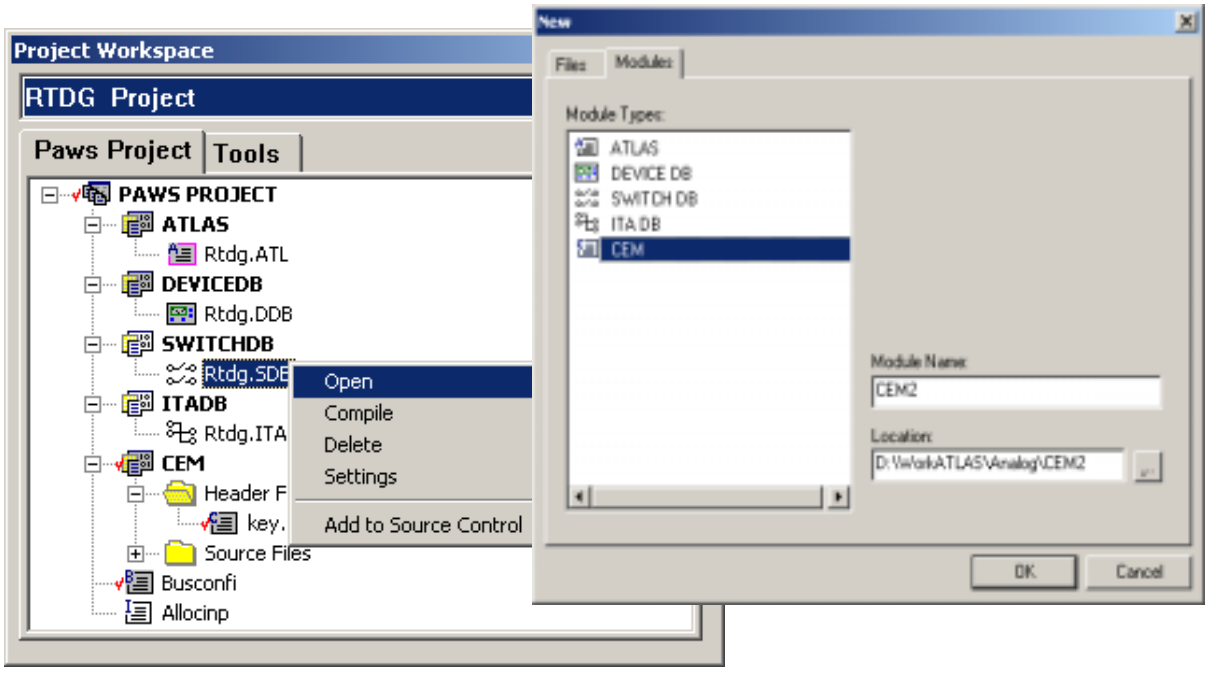

Figure 2. Expanded Project Management Capabilities

Support has been added to view and edit the Allocinp file. The file can be opened, modified, and saved as any source file. Furthermore, this file can have any name, with or without extension, and can be located anywhere. In order to be used during allocation the file has to be added to the project.

The files in the PAWS project are now supported with configuration management and source code control implemented by the Microsoft Visual Source Safe. Each source file included in the Paws project can be connected to Source Control. The connection and the source control status of the files are represented graphically in the project tree. Unique icons are used to symbolize the source control status of checked in or checked out files. Microsoft Visual Source Safe is part of Microsoft Visual C++ and must be installed in order to enable this feature.

The operations allowed by the Source Code Control module are accessed either by the context menu or by the “Source Control” submenu of the main “Project” menu. The “Source Control” submenu also provides access to non-item specific operations; refreshing the status of all tree items in respect to Source Control and launching the Source Safe application. The available Source Control operations are enabled based on the Source Control state of the currently selected tree item.

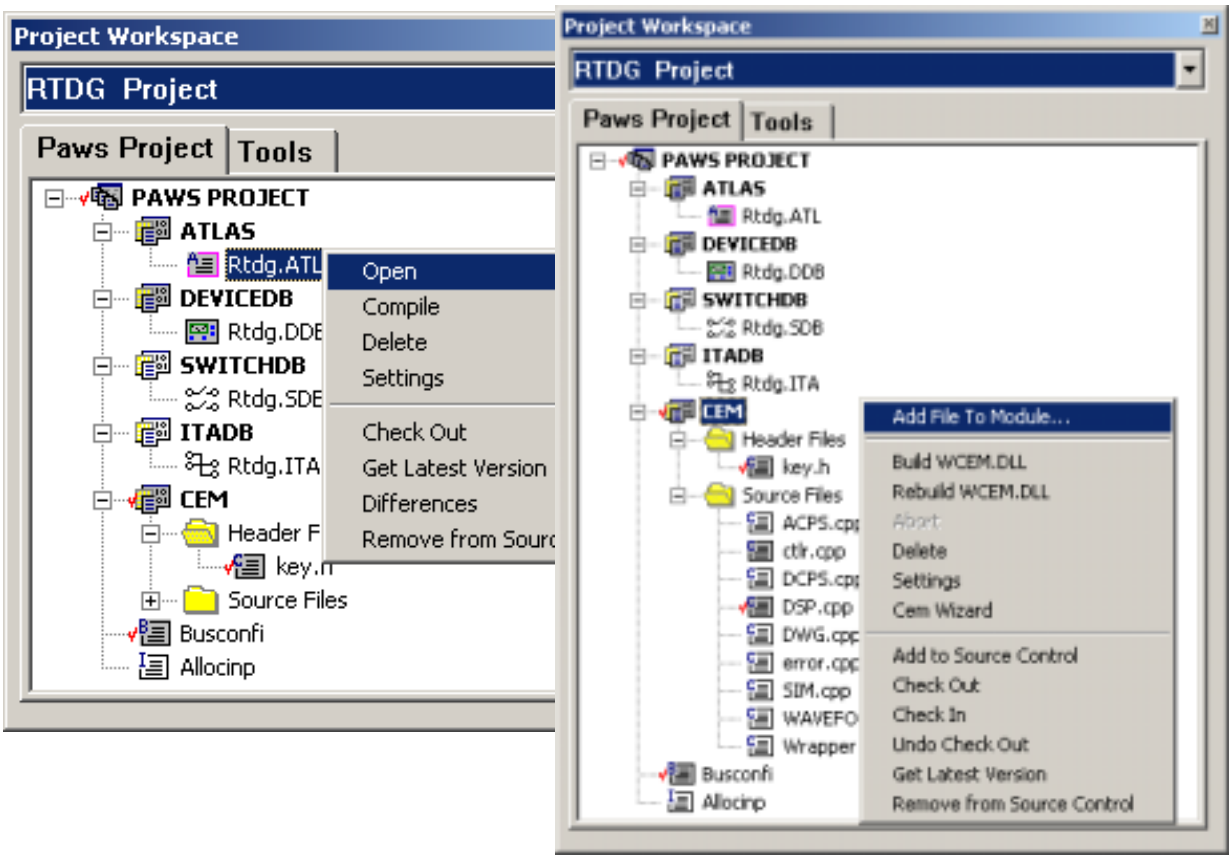

Figure 3. Configuration Management and Source Control Features

The flexibility and openness of the PAWS RTS Server COM architecture is demonstrated by a newly developed Input/Output (I/O) resource. The COM based I/O resource allows a TPS to output ATLAS arrays or records directly into Microsoft Excel documents. The output data can be represented graphically as spreadsheets charts in arrays, two-dimensional graphs or three-dimensional graphs. When the resource is open, a MS Excel document is created based on a configurable MS Excel template file. At the end of any ATLAS OUTPUT to this resource, a macro from the MS Excel template is called and given as argument to the output array. Both the name of the MS Excel template and its output macro are configurable using the I/O resource property page.

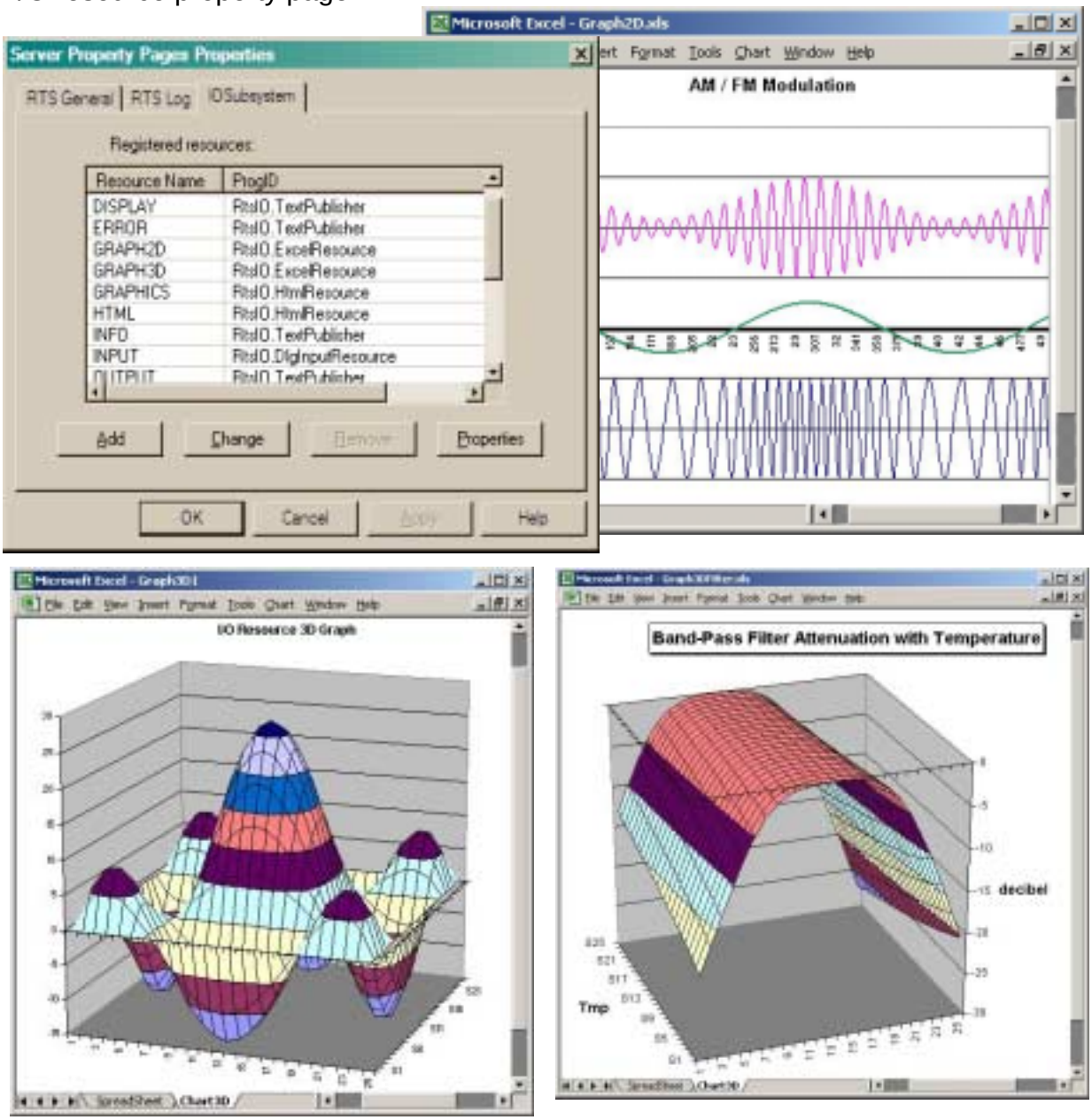

Figure 4. New Microsoft Excel based COM I/O Resource

The deployment support for the PAWS RTS has been enhanced with the introduction of the PAWS executable archive (.PAX). The PAX archive is a single file containing all information required by the PAWS RTS for execution of a TPS. The PAX archive employs file compression technology and algorithms to detect file corruption or tampering.

Using the "Archive" property page shown below the building process can be configured to also include support for run-time diagram generation and debugging. The RTS run-time support files .OBJ, .DAT, and the LexDB.LEX are always included. Additional files are required for test diagrams, debugging and macro-drivers including the device, switch and ITA databases. The content of a .PAX file can be viewed using the PawsInfo tool. The PAX file appears as a tree item in the PawsInfo tool, and when selected, the attached list will display the files included in the PAX archive, with their corresponding properties.

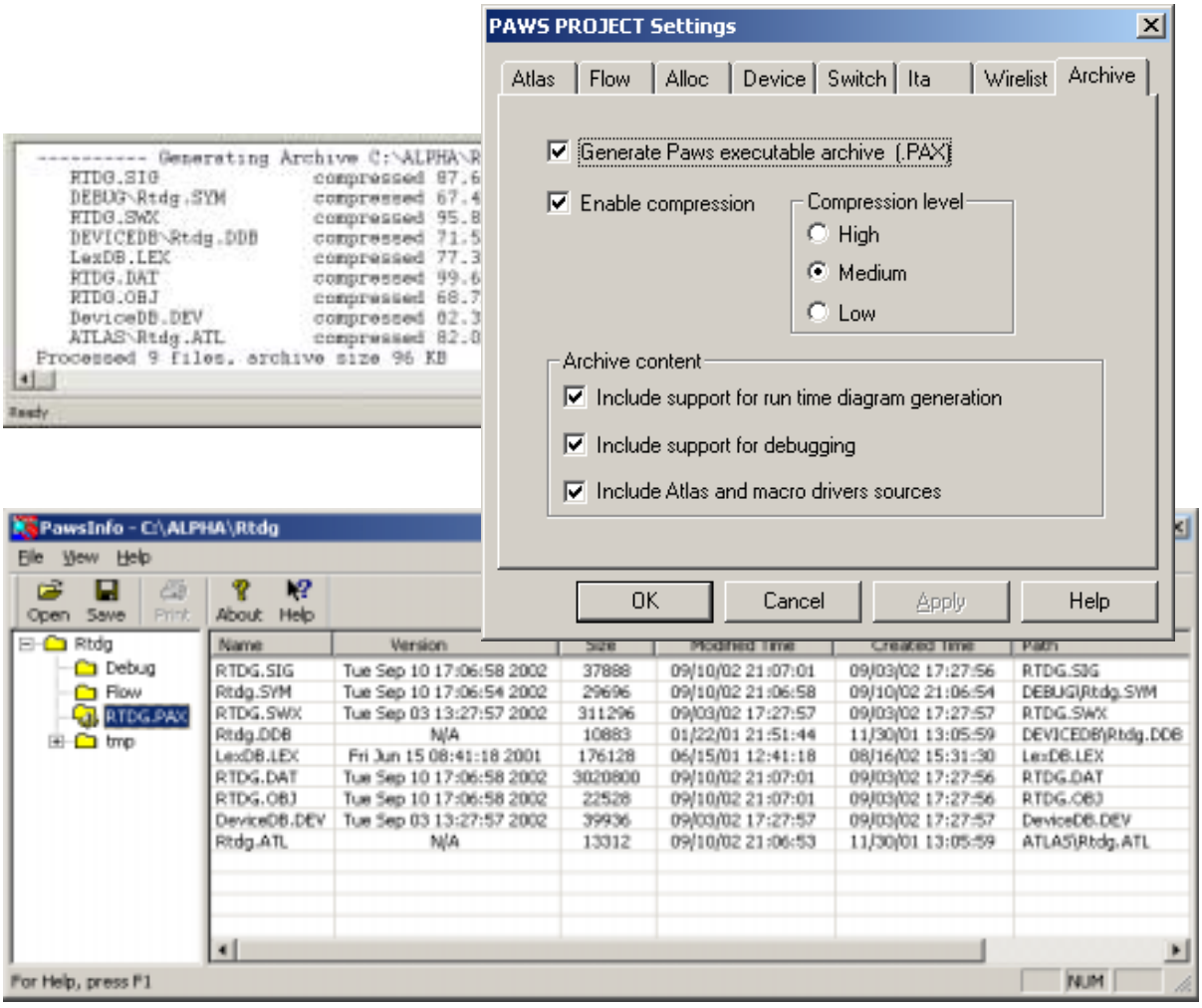

Figure 5. New PAWS Executable Archive - .PAX file

TestBase Update

Custom Data Types Editors (CDTEs) have been released in the latest version of TestBase. These editors are a new TestBase feature, allowing users to add “plug-in” modules that support the editing and display of custom data types. Such data types may be application-specific or domain-specific testing such as Electro-Optics & Lasers, High Fidelity RF or Pneumatics. The CDTEs are ActiveX controls that may be developed using Visual C++ or Visual Basic.

CDTEs are displayed by the IDE when the user edits the value of a parameter having a custom data type, and when the user checks the value of such a parameter during debug. CDTEs may be also used in Test Procedures and reports developed by users, providing programmatic access to data and, optionally, a graphical representation of data.

The current implementation of the CDTE feature allows users to examine and modify CDTEs provided as samples The Custom Data Types will be displayed each time the user selects the data type of a test procedure parameter. The Custom Data Types are located at the end of the list displayed in the data type selection drop-down. The sample CDTEs distributed with TestBase are;.

- Signal Editors
  - *Signal.AC_Signal* - AC signal
  - *Signal.AM_Signal* - AM signal
- EO Data Type Editors
  - *EO.Visible.Target.Movie* - visible target in a movie file
  - *EO.IR.Target* - infrared target in the azimuth-elevation plane
- RF Data Type Editors
  - *RF.FreqLimit.Linear* - linear frequency limit
  - *RF.FreqResp.Samples* - frequency response described by samples in the gain-frequency domain

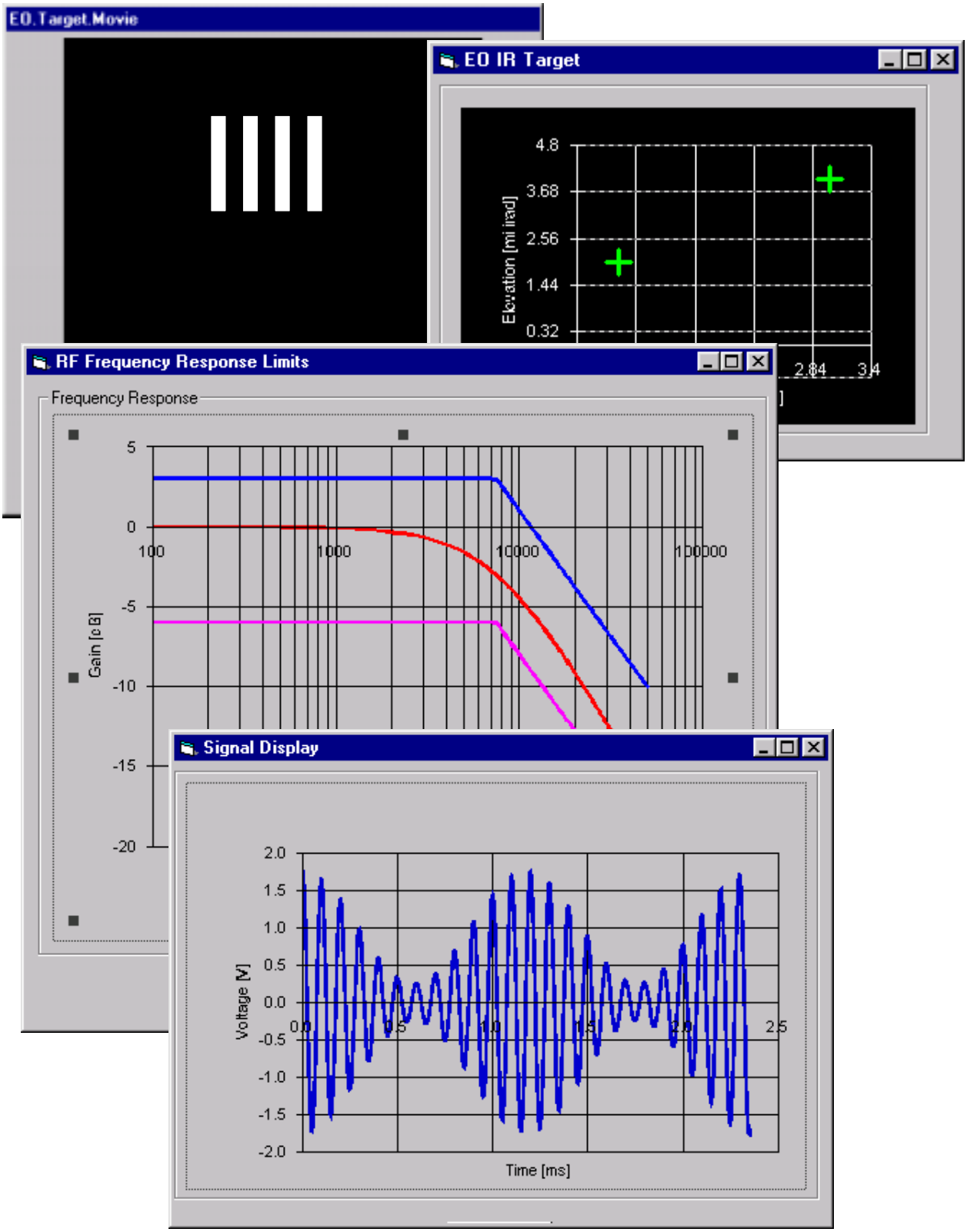

Figure 6. Custom Data Type Editors (CDTE)

New TestBase Adapters

The latest release of TestBase includes an adapter for National Instruments LabVIEW and an adapter for Agilent VEE. These adapters expand the capabilities of TestBase by allowing support for test procedures developed with LabVIEW 6.1. or VEE Version 6.1. Sample LabVIEW and VEE test procedures are distributed with TestBase for demonstration purposes. Evaluation versions of the run time system for LabVIEW or VEE may be obtained from National Instruments or Agilent Technologies web sites.

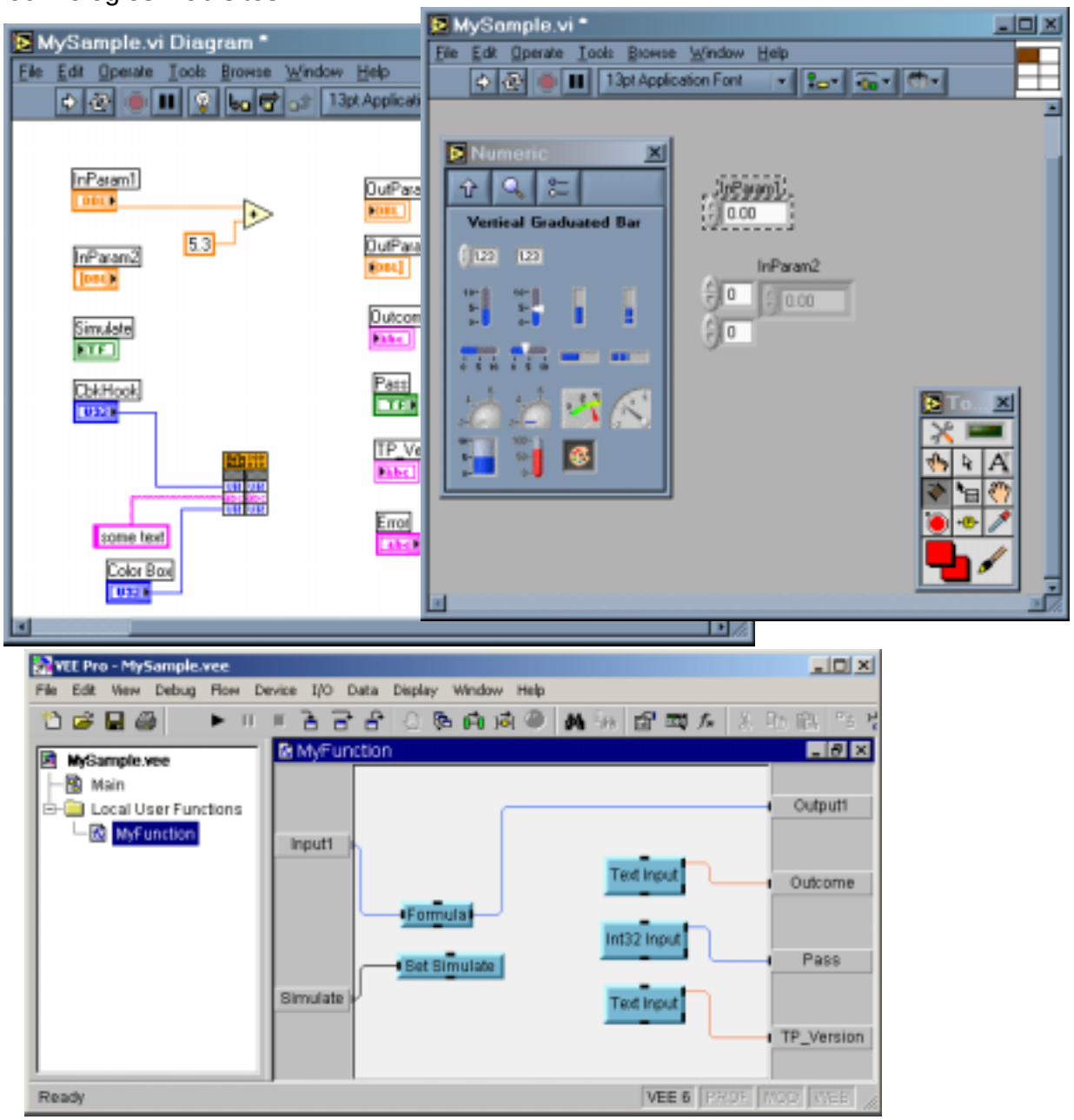

Figure 7. TestBase Adapers for LabVIEW and VEE

TestBase Embedded Demonstrator

TYX has supported the development of an Embedded Diagnostic Demonstrator and IVHM Executive (EDDIE) with DSI International, Inc. in Orange, CA. TYX has been developing an embedded version of TestBase and this platform demonstrates its capabilities on actual hardware. In an effort to increase the reach into the enterprise the embedded application is the next logical extension to the ATS discipline TestBase already covers. As technology moves forward and the amount of diagnostic capability on-board increases TestBase provides a natural interface between the test and diagnostic worlds. DSI has led the development of Integrated Vehicle Health Management (IVHM) modeling environments for NASA and DOD applications since the 1970s. TYX has been working with DSI since 1990 on the integration of these concepts first with PAWS and now with TestBase.

EDDIE is a small hardware model of a fuel system that allows the users to inject faults in real-time at various places in the design. While the system is operating the user can observe the execution of embedded health management functions in real-time. EDDIE's physical structure is made of transparent Plexiglas so that changes in state can be easily viewed. EDDIE uses an embedded PC controller running the embedded version of Windows XP. If you're interested in seeing this demonstrator in action, please contact the TYX sales staff at sales@tyx.com

Figure 8. Embedded Diagnostic Demonstrator and IVHM Executive (EDDIE)

Figure 9. Embedded Diagnostic Hardware

In response to customer requests, TYX now offers a hardware-based license scheme. The hardware dongles provide a flexible license method for deployment support. Hardware keys are very useful for provisioning of spare control computers and spare license servers. Users are able to easily move TYX product software to additional computer hardware without being keyed to a software license on a specific computer. The hardware key activates the product as long as it resides on the computer system. Hardware dongles are available for USB or parallel ports

Figure 10. Hardware License Keys

PAWS User Group Meetings

We lead off this year's series in June, 2003 with a meeting in Tokyo, hosted by our Japanese partner, Y-MAX Systems. In the autumn we are planning our Pan European meeting in Munich Germany (end of September).

Next on the schedule is the US PUG. This year we are again planning a piggy back session at Autotestcon as that venue is fairly well attended. Most probable date is the Monday of Autotestcon week. We look forward to seeing you all at one of our User Group Meetings.