



The introduction of
"Windows Accelerator Tool"
Take Windows' Advantages to
ITRON Environment



Sep. 29th 1999
Elmic Systems, Inc.

Market Trend



- **The Growth of the Hard Real-time Market**

- Annual Growth 300%-500%

- **Market's Requirements & Elmic's Solution**

- GUI → Windows

- Performance → Existing RTOS

- Time and Cost Reduction →

Use of Software Asset

Windows+the Most Predominant RTOS=the Killer Environment

ITRON

SYSTEMS®

What Windows Accelerator Tool is...



- **United Environment**

ITRON and Windows

- **Take ITRON's Superior Points and Windows' Superior Points**

- **Support ITRON's Weak Points and Windows' Weak Points**

- **Enable Windows CE Hard Real-time System**

Features of “Windows Accelerator Tool”



■ **Fastest / High Performance**

- Interrupt latency; 2 Micro Sec.
- 60-70 Times Faster Than Windows CE 2.12
- 5 Times Faster Than X's ITRON

■ **Smallest**

- **20kB**

■ **Most Reliable**

- **Without Any Changes** onto Windows CE
 - Upward Compatibility For Windows CE ITRON Ver 3 Complaint
 - Available under Windows NT embedded, NT, 98, 95

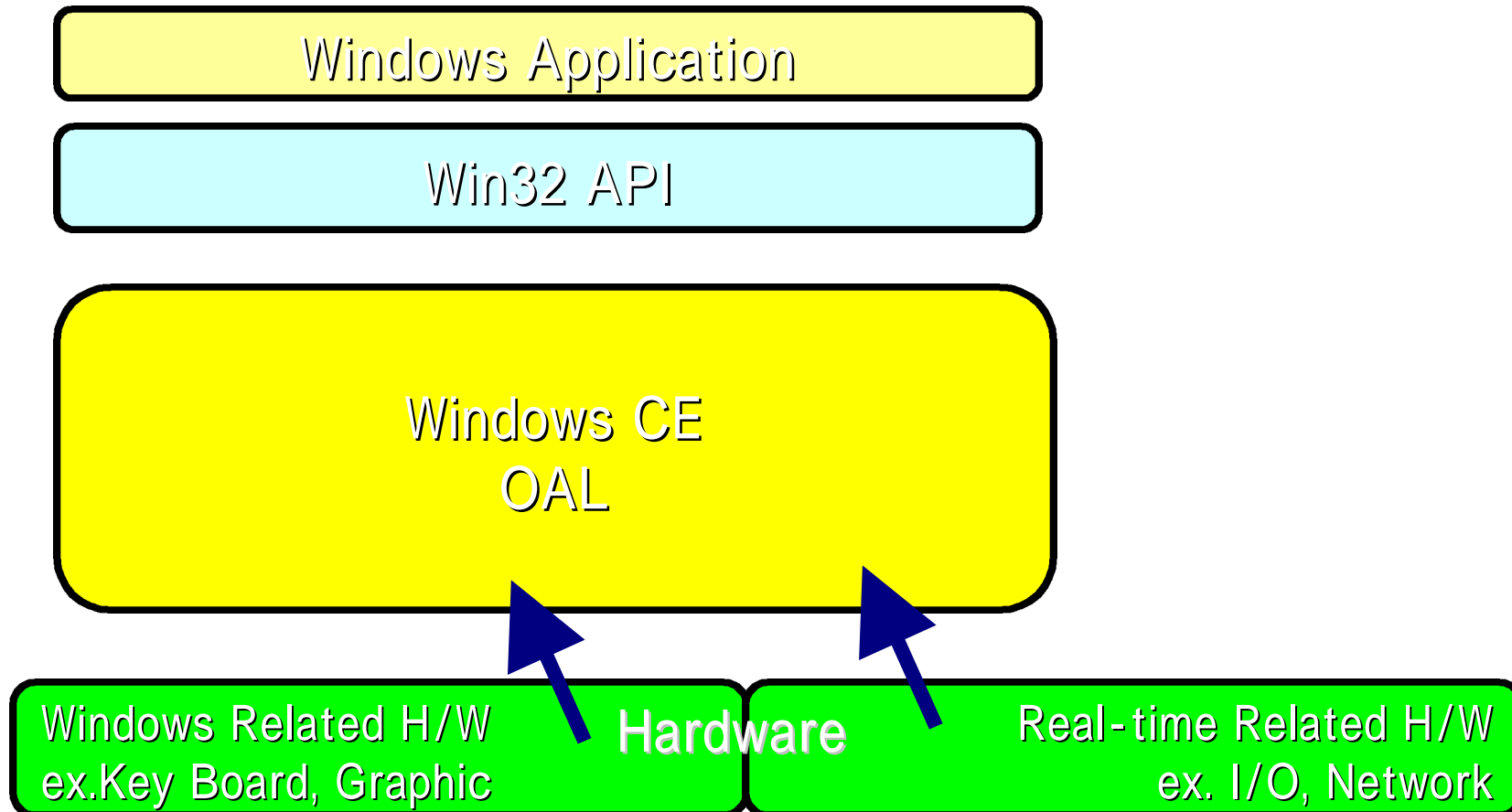
■ **Use of Software Asset** of ITRON and Windows

- Windows' GUI
- Win32API
- ITRON's System Call Functions

The Scheme



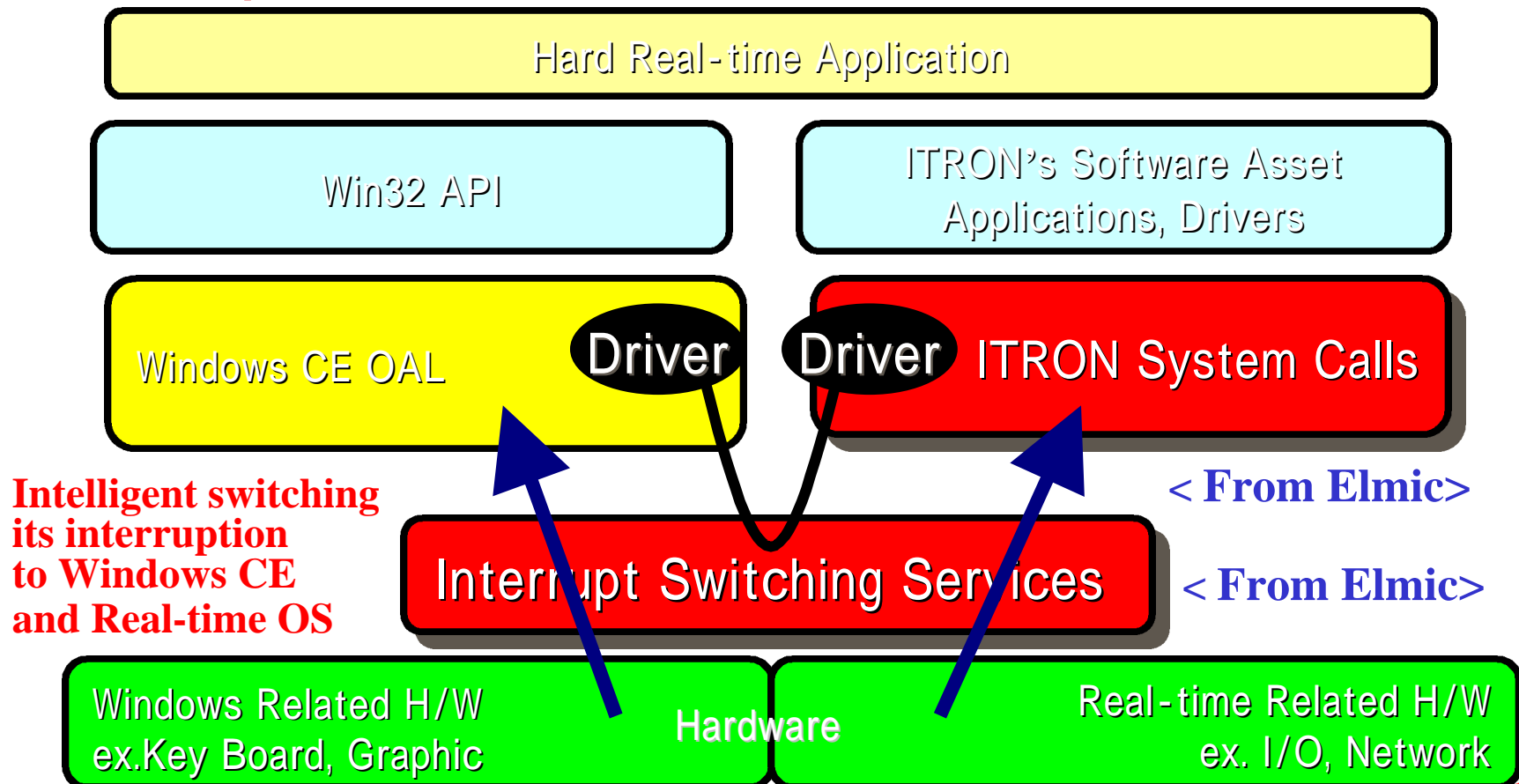
■ The scheme of Windows CE



The Scheme



■ The Scheme of "Windows Accelerator Tool" Red Squares Are Provided From ELMIC



Specifications for “Windows Accelerator Tool”



■ CPU

- SH3 SH4 (Now Available)
- Intel, ARM, Power PC, MIPS(Planned)

■ RTOS System Call

- μ iTRON 3.0 Compliant
- POSIX Compliant (Planned)

■ Bundled Sample Drivers

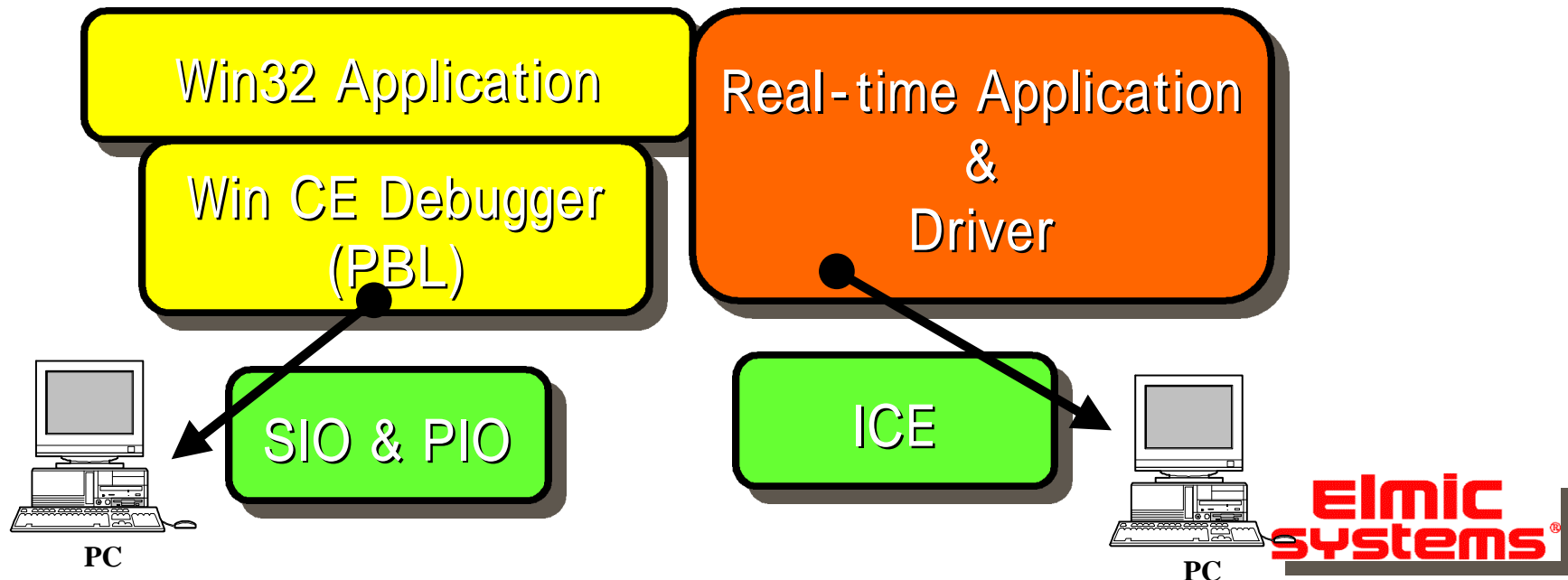
- Real-time Serial Driver
- Parallel Port Driver
- TCP/IP Protocol Stack and LAN Driver

Technical Information



■ Debugging Environment

- Win32 Related Application & Drivers
 - | Platform Builder
- Real-time Related Application & Drivers
 - | ICE etc.

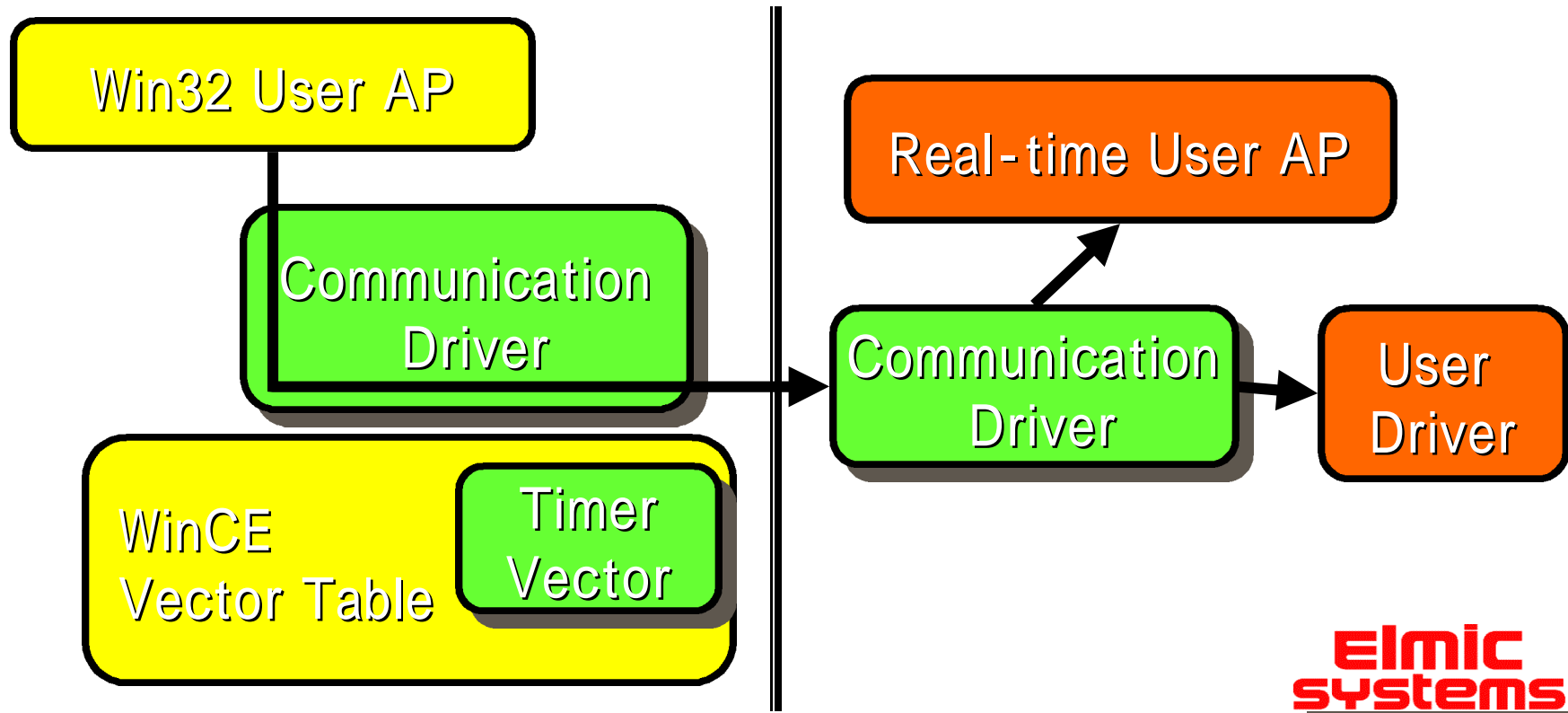


Technical Information



■ Communication Between Windows CE & ITRON

■ From Windows CE to ITRON

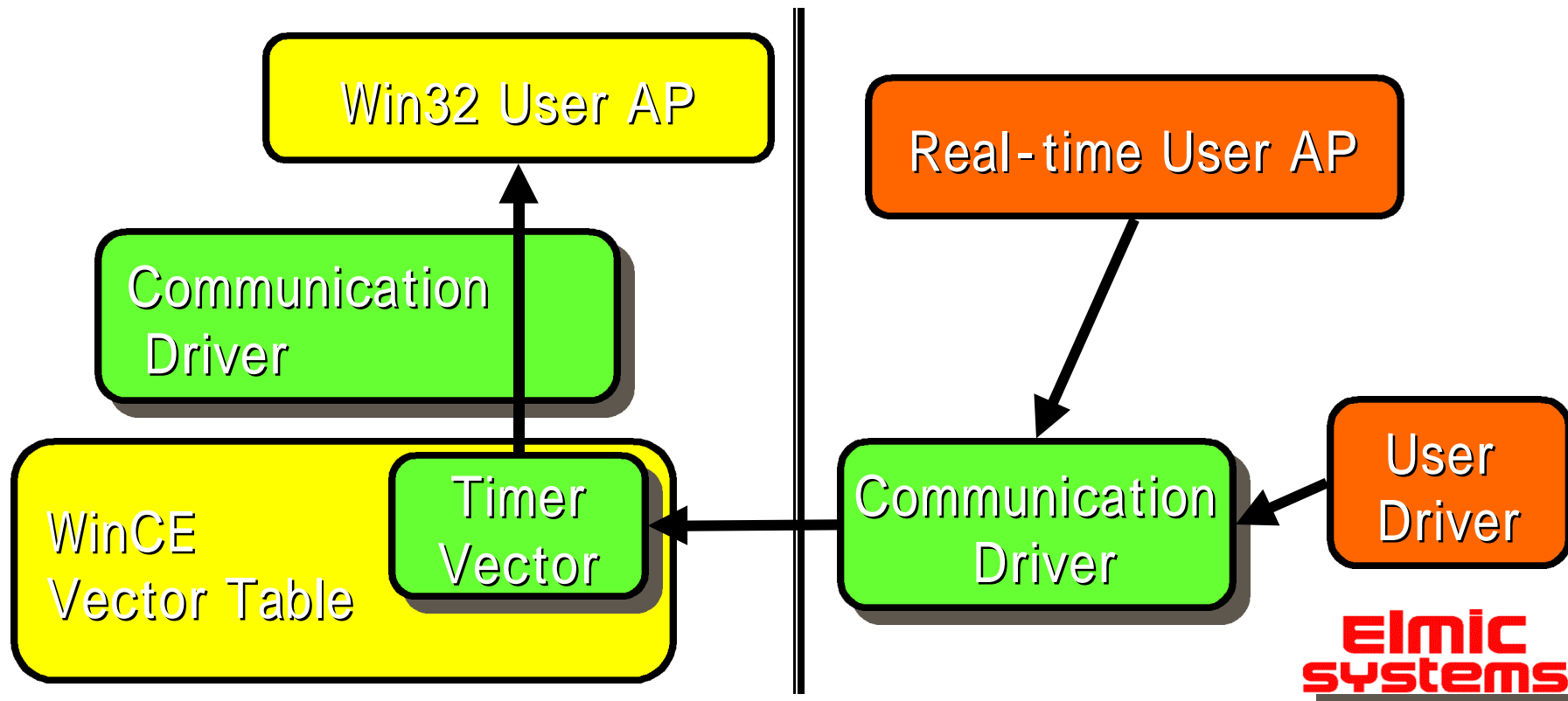


Technical Information



■ Communication Between Windows CE & ITRON

■ From ITRON to Windows CE



Technical Information



■ RTOS System Calls

■ Task Control Function

- | cre_tsk sta_tsk ext_tsk ter_tsk dis_dsp
ena_dsp chg_pri rot_rdg rel_wai get_tid ref_tsk

■ Task Related Synchronous Function

- | sus_tsk rsm_tsk frsm_tsk slp_tsk wup_tsk
can_wup

■ Synchronous/Communication Function

- | cre_sem sig_sem wai_sem preg_sem ref_scm
cre_flg set_flg clr_flg wai_flg pol_flg ref_flg
cre_mbx snd_msg rcv_msg prcv_msg ref_mbx

Technical Information



■ RTOS System Calls

- Interrupt Management Function
 - | `def_int loc_cpu unl_cpu dis_int ena_int`
- Memory Pool Function
 - | `cre_mpf del_mpf get_blf pget_blf rel_blf ref_mpf`
- Timer & System Management Function
 - | `set_tim get_tim dly_tsk get_ver`

Distribution Channels in The USA and Shipping Schedule



- **Distributors and SIs (as of Sep. 1999)**
 - **BSQUARE (Bellevue, Washington)**
 - **ANNASOFT (San Diego, California)**
 - **EMBEDDED TECHNOLOGY (Minneapolis, Minnesota)**
- **Shipping Schedule**
 - **Nov. 1999**

What Elmic is...



■ Embedded System Solution Provider

■ Hard Real-time Related Products

■ RTOS

- ELX
- ITRON

Smallest, Fastest and Most Reliable

■ Windows Accelerator Tool

■ Kasago TCP/IP

■ kasago Browser, Web Server, Mailer...

■ Embedded Communication Protocol Modules

- IEEE1304
- Bluetooth

■ Microsoft's Authorized Distributor &SI

■ Hardware Manufacturer



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