

E0C33 Family ROS33 Middleware

Realtime OS middleware

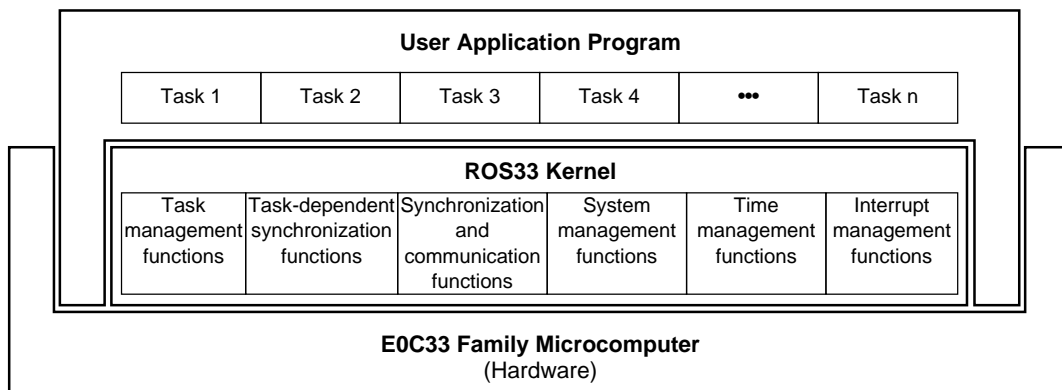
- Realtime OS for E0C33 Family
- Support μ ITRON 3.0 level S
- Optimize for E0C33 Family

DESCRIPTION

- The ROS33 is a realtime operating system for the E0C33 Family of single-chip microcomputers based on μ ITRON 3.0. System calls up to Level S (Standard) are supported.
- Programs can be developed in C and assembly language.
- Compact and high-speed kernel optimized for use in the E0C33 Family.
- The ROS33 is released with a 3.5-inch FD including all source code, library and sample programs. So you can customize the ROS33 for your system.
- Multiple tasks can share a common stack area (when not processed in parallel). You can minimize the amount of RAM used in your system by your application.
- Using ROS33 in your design enables you to quickly and efficiently develop embedded applications for printers, PDAs, FA products and various types of control equipment.

FEATURES

● System Diagram



● Resources

- | | |
|------------------------------------|---------------------------------|
| Number of tasks : 1 to 255 | Number of semaphores : 1 to 255 |
| Number of priority levels : 1 to 9 | Number of mailboxes : 1 to 255 |
| Number of event flags : 1 to 255 | |

● Kernel Size

- | | |
|--|---------------|
| μ ITRON 3.0 Level R (Required) support | : 1,748 bytes |
| μ ITRON 3.0 Level S (Standard) support | : 2,632 bytes |
| Maximum configuration (including debug kernel) | : 3,804 bytes |

● Speed of ROS33

E0C33 system configuration	Dispatch time	Interrupt time
20MHz, internal ROM, internal RAM	12.9 μ S	7.2 μ S
20MHz, external ROM (2 Wait), internal RAM	23.6 μ S	14.8 μ S
33MHz, internal ROM, internal RAM	7.84 μ S	4.3 μ S
33MHz, external ROM (2 Wait), internal RAM	14.3 μ S	9.0 μ S

These values were evaluated using the ICE33 when tasks of the same priority were switched over by a rot_rdq system call.

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● System Call List

Task Management Functions			
ena_dsp()	Enable Dispatch	dis_dsp()	Disable Dispatch
ext_tsk()	Exit Issuing Task	sta_tsk()	Start Task
chg_pri()	Change Task Priority	ter_tsk()	Terminate Other Task
rel_wai()	Release Wait of Other Task	rot_rdq()	Rotate Tasks on the Ready Queue
Task-Dependent Synchronization Functions			
wup_tsk()	Wakeup Other Task	slp_tsk()	Sleep Task
sus_tsk()	Suspend Other Task	rsm_tsk()	Resume Suspended Task
can_wup()	Cancel Wakeup Request		
Synchronization and Communication Functions			
preq_sem()	Poll and Request Semaphore	sig_sem()	Signal Semaphore
wai_sem()	Wait on Semaphore	rcv_msg()	Receive Message from Mailbox
prcv_msg()	Poll and Receive Message from Mailbox	snd_msg()	Send Message to Mailbox
wai_flg()	Wait on Eventflag	pol_flg()	Wait for Eventflag (Polling)
set_flg()	Set Eventflag	clr_flg()	Clear Eventflag
System Management Functions			
get_ver()	Get Version Information		
Time Management Functions			
set_tim()	Set System Clock	get_tim()	Get System Clock
dly_tsk()	Delay Task		
Interrupt Management Functions			
loc_cpu()	Lock CPU	unl_cpu()	Unlock CPU

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