

HiROSS

Hitex Realtime Operating System Support

The open structure of HiTOP/win, the universal debugger for emulators, target debuggers and simulators, can be used to adapt 3rd party development tools very easily.

Within the 16 - 32 bit world of embedded microcontroller applications, it is quite normal to use Realtime Operating Systems of different vendors. This kind of system makes design of complex controlware fairly easy. But you have to have the right support of that software in conjunction with your debugging environment. Hitex supports all major RTOS of an architecture. In this way, you have fully transparent overview of your whole software system at any time by displaying information like tasks-list, detailed information of a specific task, message queues, delays, memory objects a.s.o.

| RTOS Tasks | | | | | |
|------------|---------|---------|------|---------|--|
| No. | ID | Task | Prio | State | |
| 1. | 0x015F4 | * Task1 | 9 | ready | |
| 2. | 0x01362 | task2 | 8 | waiting | |
| 3. | 0x0155A | task3 | 12 | ready | |

| RTOS More Task Info | | | | | |
|---------------------|--|--|--|--|--|
| | | | | | |

| RTOS Messages | | | | | |
|---------------|--|--|--|--|--|
| | | | | | |

| RTOS Used Blocks | | | | | |
|------------------|------|-----------------|-------------|-------------|-----------------------------|
| ID | Size | Requesting task | Data length | Data buffer | Data |
| 0x011BC | 18 | Task1 | 6 | 0x011C4 | 01 00 00 00 00 00 |
| 0x011CE | 18 | Task1 | 6 | 0x011D6 | 01 00 00 00 00 00 |
| 0x011E0 | 18 | Task1 | 6 | 0x011E8 | 01 00 00 00 00 00 |
| 0x011F2 | 18 | Task1 | 6 | 0x011FA | 02 00 00 00 01 00 |
| 0x01204 | 342 | Task1 | 330 | 0x0120C | 05 55 00 00 00 00 00 00 ... |
| 0x0135A | 162 | Task1 | 150 | 0x01362 | B4 13 B4 13 06 66 00 00 ... |

Supported RTOS:

- ➔ **PXROS (Hightec)**
- ➔ **RTX166 (Keil)**
- ➔ **CMX-RTX C166 (CMX Comp.)**
- ➔ **NUCLEUS C166 (Acc.Tech.)**
- ➔ **OSE Basic* (Enea OSE)**
- ➔ **PSOS *(ISI)**
- ➔ **Vx-Works*(WindRiver)**
- ➔ **VRTX*(Microtec Research)**

* in preparation

What functions are available ?

Display of

- task list
- detailed information on a specific task
- messages
- delays
- memory classes
- used blocks
- mailboxes and object pools

Task-specific Breakpoints in Realtime!

Setup a breakpoint in a shared code area.

The emulation will be stopped only a execution that shared code by a specified task. (Not available for all Hitex Emulators).

Hitex Development Tools

available worldwide

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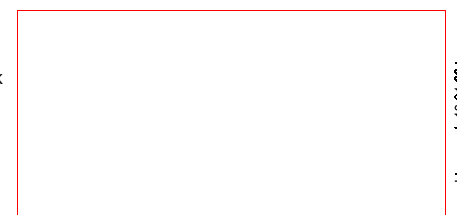
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Our Partner



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Display of Realtime Operating System Objects

(example PXROS for C166 microcontroller family)

| No. | ID | Task | Prio | State |
|-----|---------|---------|------|---------|
| 1. | 0x015F4 | * Task1 | 9 | ready |
| 2. | 0x01362 | task2 | 8 | waiting |
| 3. | 0x0155A | task3 | 12 | ready |

RTOS system-overview with task no., start address, taskname, priority and state of the task

| Description | Value |
|------------------------------|------------|
| TASK: | Task1 |
| Task stack position: | 0x0001EA0 |
| PC position: | 0x0001D5C6 |
| Start address of task stack: | 0x0001B2C |
| Activation function: | 0x0001D402 |
| Priority: | 0x0000009 |
| Private mailbox: | 0x01642 |
| Current tcb_limit: | 0x0000022 |
| Last PXROS error: | 0x0000000 |
| State: | 0x0000002 |
| Waiting events: | 0x0000000 |
| Received events: | 0x0000000 |
| Default memory class: | 0x000169A |
| Default object pool: | 0x00016CE |
| Application information: | 0x0000000 |
| Name: | 0x0001684 |
| Stack peek: | 0x0001E3C |
| Waiting in queue: | 0x0000000 |
| Stack end: | 0x0001F2C |
| Magic: | 0x00007770 |

Detailed information on one specific task

| ID | Owner | User | Size | Data buffer | Data (hex) |
|---------|-------|------|------|-------------|-------------------|
| 0x0183A | Task1 | | 6 | 0x011A0 | 01 00 00 00 00 00 |
| 0x01808 | Task1 | | 6 | 0x01182 | 01 00 00 00 00 00 |
| 0x017D2 | Task1 | | 6 | 0x011C4 | 01 00 00 00 00 00 |
| 0x0179E | Task1 | | 6 | 0x01106 | 01 00 00 00 00 00 |
| 0x0176A | Task1 | | 6 | 0x01188 | 01 00 00 00 00 00 |
| 0x01736 | Task1 | | 6 | 0x011FA | 02 00 00 00 00 01 |

RTOS messages-overview with id, owner and user, the size and address of the data field and the first 8 data bytes.

| ID | Private of | Messages (norm) | Messages (prio) | Waiting tasks |
|---------|------------|-----------------|-----------------|---------------|
| 0x01642 | Task1 | | | |
| 0x015A8 | task3 | 0x0183A | 0x01736 | 0x0176 |
| 0x01388 | task2 | | | task2 |

Mailbox information like id, name of the task (for private mailboxes), normal or priority message and the task waiting for messages.

| ID | Type | Block size | Current cap. | Min. cap. |
|---------|-----------|------------|--------------|-----------|
| 0x0169A | var. size | | 2586 byte | 2586 byte |

Information about memory classes allocated by the RTOS.

| ID | Size | Requesting task | Own length | Data bytes | Data |
|---------|------|-----------------|------------|------------|-----------------------------|
| 0x011BC | 18 | Task1 | 6 | 0x011C4 | 01 00 00 00 00 00 |
| 0x011CE | 18 | Task1 | 6 | 0x011D6 | 01 00 00 00 00 00 |
| 0x011E0 | 18 | Task1 | 6 | 0x011E8 | 01 00 00 00 00 00 |
| 0x011F2 | 18 | Task1 | 6 | 0x011FA | 02 00 00 00 01 00 |
| 0x01204 | 342 | Task1 | 330 | 0x0120C | 05 55 00 00 00 00 00 00 ... |
| 0x0119A | 162 | Task1 | 150 | 0x01362 | 04 13 04 13 06 66 00 00 ... |

Memory class ID: 0x0169A

Overview of the used memory blocks including detailed information on each block

Options (PXROS)

Tasks: task1, task2, task3

Tasks of Interest: task1, task2

Buttons: Add, Cancel ID →, Seq. Level →, ← Delete, Task of Interest, Set, OK, Cancel, Help, Disable, Interrupts, Scheduling, Profiling

Definition dialog for task-specific breakpoints