

aloe

ismael

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```

classDiagram
    class hwapi {
        +name: string
        +mode is input: boolean
        +delay: int
        +address: string
        +is_blocking: boolean
        +callback: fncPtr*
        +create(address: string)
        +remove()
        +send(buffer: void*, len: int)
        +recv(buffer: void*, len: int)
        +set_callback(fnc: fncPtr*, prio: int)
        +set_blocking(block: boolean)
        +get_blocking() boolean
        +request_ptr(size: int): void*
        +put_ptr(ptr: void*)
        +get_ptr() void*
        +release_ptr(ptr: void*)
        +set_delay(delay: int)
        +get_delay() int
    }

    class hwapi_ifqueue {
        +queues: if_queue_MAX
    }

    class hwapi_ifphysic {
        +sock_id: int
        +conn_id: int
        +is_tcp: boolean
        +sock_addr: sockaddr
        +name: string
        +connected: boolean
        +id: int
        +create(address: string)
        +connect()
        +disconnect()
        +remove()
        +recv(buffer: void*, len: int)
        +send(buffer: void*, len: int)
        +set_blocking(block: boolean)
        +get_blocking() boolean
        +request_ptr(size: int): void*
        +put_ptr(ptr: void*)
        +set_callback(fnc: fncPtr*, prio: int)
    }

    class hwapi_dac {
        +options: string
        +freq: float
        +block_len: int
        +sample_type: int
        +address: string
        +is_begin_fnc: fncPtr*
        +thread_prio: int
        +sync_clock: boolean
        +open(address: string, options: string)
        +close()
        +set_scheduler(is_begin_fnc: fncPtr*, thread_prio: int)
        +start()
        +set_opts(opts: string)
        +set_freq(freq: float)
        +set_block_len(len: int)
        +set_sample_type(type: int)
        +set_buffersize(bufsize: int, out_chan)
        +channel(chl: chl) hwapi_dacchannel
        +run_sync(thread)
    }

    class hwapi_dac_x5
    class hwapi_dac_uhd

    class hwapi {
        +is_begin_fnc: fncPtr*
        +initialize_node(config_file: string, is_begin_fnc: fncPtr)
        +start_node_interface(config_file: string)
        +start_manager_interfaces(config_file: string)
        +periodic_add(fnc: fncPtr, period: int)
        +periodic_remove(fnc: fncPtr)
        +if_physic_get(name: string): hwapi_ifphysic*
        +hwapi_dac_get(address: string): hwapi_dac*
        +if_queue_new() hwapi_ifqueue*
        +process_new() hwapi_process*
    }

    class hwapi_machine {
        +cpu_type: int
        +mmapts: float
        +mbps: float
        +name: string
        +n_processors: int
        +rt_fault_opts: int
        +kernel_prio: int
        +pipeline_prio: int
        +sync_period: int
        +sync_continuous: boolean
        +slave_master: boolean
        +max_waveforms: int
        +max_modules_x_waveform: int
    }

    class hwapi_time {
        +init_time: time_t*
        +init_time_is_shm: boolean
        +is_cnt: int
        +set_time(time: ts)
        +get_time(time: ts)
        +alarm: int
        +time_attach_local()
    }

    class hwapi_periods {
        +callback: fncPtr*
        +period: int
        +counter: int
    }

    class hwapi_error {
        +code: hwapi_errorcodes
        +string(): char*
        +code() hwapi_errorcodes
    }

    class hwapi_errorcodes {
        +EINVAL
        +ENOSPC
        +EEXIST
        +ESYSSEM
        +E2BIG
        +EOTHER
    }

    class hwapi_pipeline {
        +semaphore: semaphore
        +nof_modules: int
        +finished: boolean
        +running_process: hwapi_process
        +thread: pthread
        +sig_masked: int
        +run_thread()
        +recover_thread(process: hwapi_process)
        +add_thread(hwapi_process)
        +remove_ptr(hwapi_process)
        +sigsev_handler()
    }

    class hwapi_kernel {
        +resources_opened: boolean
        +main()
        +initialize()
        +timer_thread()
        +sigwait_thr(read)
        +is_begin()
        +rt_fault(process: hwapi_process)
        +cleanup()
    }

    class hwapi_task {
        +sleep_sem: semaphore
        +sleep(sleep_slots: int)
        +new(fnc: fncPtr, arg: void*)
        +new_prio(fnc: fncPtr, arg: void*, prio: int)
    }






    class hwapi_channel {
        +dac_channel_MAX
    }










    class hwapi_context {
        +pid: int
        +binary_path: string
        +exec_position: int
        +processor_idx: int
        +handle: void*
        +run_point: fncPtr
        +abort_point: fncPtr
        +runnable: boolean
        +finish_callback: fncPtr*
        +finish_code: int
        +module: nod_module
        +error_msg: string
        +detach()
        +remove()
        +pid()
        +run()
    }









    class nod_module {
        +serialize(pkt: packet)
        +unserializeTo(pkt: packet, dest: serializable)
    }

    hwapi --|> hwapi_ifqueue
    hwapi_ifqueue --|> hwapi_ifphysic
    hwapi_dac_x5 --|> hwapi_dac
    hwapi_dac_uhd --|> hwapi_dac
    hwapi --|> hwapi_machine
    hwapi --|> hwapi_time
    hwapi --|> hwapi_periods
    hwapi --|> hwapi_error
    hwapi_pipeline --|> hwapi_kernel
    hwapi_pipeline --|> hwapi_task
    hwapi_pipeline --|> hwapi_channel
    hwapi_pipeline --|> hwapi_context
    hwapi_pipeline --|> nod_module
    hwapi_pipeline --|> hwapi_errorcodes
    hwapi_pipeline --|> hwapi_periods
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    hwapi_pipeline --|> nod_module
    hwapi_pipeline --|> hwapi_errorcodes
    hwapi_pipeline --
```

Summary

Name	Documentation
 hwapi_itf	Abstract class that manages the hwapi data or control, physical or logical interfaces.
 hwapi_dac	This is the interface to the digital converters. Each converter must implement the interface in a particular class
 hwapi_processerrors	
 swapi	This is the module's interface to ALOE. It provides functions for creation of interfaces, global variables, pre-initialized values, log files and time counters. See swapi_module class for information on how to define a module.
 hwapi_itfqueue	A Queue is an interface used for inter-module communications. It implements the methods of the Interface class only. Not yet specified. Possibly use a third party library.

 hwapi_process	<p>A HWAPI Process is defined as dynamically loaded shared library with two symbols that *MUST* be defined:</p> <ul style="list-style-type: none"> - <code>_startup(arg0,arg1)</code>: This function is called at load-time and is not subject to real-time constraints. - <code>_runCycle()</code>: This function is called each time-slot and is subject to real-time constraints. <p>It is used to load and execute signal processing waveform modules. The HWAPI.Process objects are instantiated by <code>Base.initializeNode()</code> function at boot. A call to <code>create()</code> loads the module into memory. A call to <code>startup()</code> calls the <code>_startup()</code> function and a call to places the <code>_runCycle()</code> function into the pipelined execution queue (see Proc-Thread class)</p>
 nod_module	Stores the attributes of waveform module.
 hwapi_dacchannel	
 hwapi_itfphysic	In linux, physical interfaces are TCP/IP Ethernet interfaces. They inherit from the Interface abstract class. Supported protocols are TCP and UDP. Modes can be IN, which creates an input socket and accepts the connection in TCP; or OUT, which creates the output socket.
 hwapi_dacx5	
 hwapi_dacuhd	Implementation of the DAC interface to the Universal Hardware Driver (UHD) for USRP family of devices.
 hwapi_pipeline	<p>A ProcThread is a POSIX-thread that runs in a single processor core with real-time priority and FIFO-scheduling (non-preemptable). It has a queue of function pointers which are called one after another. This functions are supposed to run SP tasks.</p> <p>The thread is synchronized with the kernel-thread with a shared memory POSIX semaphore. At the beginning of the timeslot, the kernel-thread activates a semaphore indicating the Proc-Thread may start its execution. After all functions are called, the Proc-Thread blocks on the semaphore again.</p> <p>These threads are detachable.</p>
 hwapi	<p>The Base HWAPI class abstracts the platform (OS) and hardware particularities, for instance: timers, shared memory, physical interfaces and process creation/scheduling.</p> <p>Only one instance of this class can be created on each node. This is created by the kernel-thread class at boot of every node or by the Manager process. The hwapi is in charge of controlling thread-local-storage. Therefore, there is no need to pass a pointer to the hwapi context to each function call. In linux, can be implemented using POSIX TLS or <code>__thread</code> GCC. However, this is not strictly required since only one execution thread access thread-sensible functions at a time.</p>
 hwapi_kernel	The HWAPI kernel schedules the execution of the ALOE-Node class and waveform modules in each platform's node. The <code>main()</code> is implemented in this class. When it starts, it creates the HWAPI-base class (which instantiates the rest of hwapi classes) and the ALOE-Node class (which processes commands from the manager). It initializes hardware devices and runs the main kernel timer.


	<p>The execution timer, in Linux, can be driven from three different sources, chosen from the platform.conf file :</p> <ol style="list-style-type: none"> 1) POSIX real-time timer 2) Synchronization packet, through a POSIX semaphore 3) Digital converter, through a POSIX semaphore
 hwapi_machine	Public structure configured at initialize() from the information read from platform.conf. Stores some properties of the local machine architecture.
 hwapi_time	
 hwapi_error	
 hwapi_shm	A non-instantiable class (no attributes). Just a collection of functions associated to shared memory management.
 hwapi_errorcodes	
 hwapi_task	
 hwapi_periodic	
 hwapi_file	A non-instantiable class (no attributes). Just a collection of functions associated to file management.


Details


hwapi_itf

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	Abstract class that manages the hwapi data or control, physical or logical interfaces.
Author	ismael
Create Date Time	Sep 18, 2012 9:47:30 AM
Last Modified	Oct 8, 2012 8:29:02 PM


Attributes


package name : string			
Author	ismael		
Create Date Time	Sep 17, 2012 7:38:59 PM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	 string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package mode_is_input : boolean			
Author	ismael		
Create Date Time	Sep 17, 2012 7:42:21 PM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	 boolean		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package delay : int			
Documentation	Interface delay, in timeslots		
Author	ismael		
Create Date Time	Sep 22, 2012 10:14:29 PM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		


Aggregation	None
Derived Union	false
Read Only	false
Leaf	false

package address : string			
Author	ismael		
Create Date Time	Sep 26, 2012 11:23:17 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	 string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		



package is_blocking : boolean			
Author	ismael		
Create Date Time	Sep 26, 2012 11:40:33 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	 boolean		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		



package callback : fncPtr			
Author	ismael		
Create Date Time	Oct 4, 2012 9:46:06 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type Modifier	*		
Type	fncPtr		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Operations


public create (address : string)		
Parameters	address	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 26, 2012 11:23:54 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 string
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Creates and connects the interface. The +name and +mode attributes *MUST* be filled before calling to this method.	
Author	ismael	
Create Date Time	Sep 14, 2012 1:06:27 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

public remove ()	
Static	false
Leaf	false
Author	ismael
Create Date Time	Sep 17, 2012 1:07:33 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public send (buffer : void, len : int)		
Parameters	buffer	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 1:08:16 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	 void
	Direction	inout
	Dotnet Code Detail	N/A
	len	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 1:08:16 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
	Static	false
	Leaf	false
	Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


public recv (buffer : void, len : int)		
Parameters	buffer	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 1:08:19 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	 void
	Direction	inout
	Dotnet Code Detail	N/A
	len	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 1:08:19 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Sep 12, 2012 1:50:47 AM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

public set_callback (fnc : fncPtr, prio : int)

Parameters	fnc	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 18, 2012 10:18:31 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	fncPtr
	Direction	inout
	Dotnet Code Detail	N/A
	prio	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 4, 2012 9:57:17 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	<p>Adds a callback handler to the interface with priority prio. This function creates a thread with priority prio which blocks waiting for new packets. When the packet is ready to be received, fnc() is called. The fnc() handler then should use recv() to receive the packet. Note that the behavior is unspecified if another thread calls recv and a packet arrives.</p> <p>prio=0 indicates non-realtime default priority.</p>	
Author	ismael	
Create Date Time	Sep 18, 2012 10:16:28 AM	
Last Modified	Oct 8, 2012 8:29:02 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


public set_blocking (block : boolean)		
Parameters	block	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 26, 2012 11:40:23 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 boolean
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Sep 26, 2012 11:40:10 AM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

public get_blocking () : boolean	
Static	false
Leaf	false
Author	ismael
Create Date Time	Sep 26, 2012 11:40:23 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public request_ptr (size : int) : void		
Parameters	size	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 7:34:46 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Sep 17, 2012 7:34:36 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Type Modifier	*	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

public put_ptr (ptr : void)		
Parameters	ptr	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 24, 2012 12:01:02 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	 void
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Sep 24, 2012 12:00:05 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


public get_ptr () : void	
Static	false
Leaf	false
Author	ismael
Create Date Time	Sep 17, 2012 7:35:13 PM
Last Modified	Oct 8, 2012 12:33:16 AM
Type Modifier	*
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


public release_ptr (ptr : void)		
Parameters	ptr	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 7:35:13 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	 void
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Sep 17, 2012 7:34:46 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

public set_delay (delay : int)		
Parameters	delay	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 22, 2012 10:14:43 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Sep 22, 2012 10:14:35 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

public get_delay () : int	
Static	false
Leaf	false
Author	ismael
Create Date Time	Sep 22, 2012 10:14:43 PM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

Relationships


Unnamed Generalization	
To	 hwapi_itfphysic
Author	ismael
Create Date Time	Sep 18, 2012 9:48:09 AM
Last Modified	Oct 8, 2012 12:11:32 PM
Substitutable	false
Visibility	Unspecified


Unnamed Generalization	
To	 hwapi_itfqueue
Author	ismael
Create Date Time	Sep 18, 2012 9:48:11 AM
Last Modified	Oct 8, 2012 12:11:32 PM
Substitutable	false
Visibility	Unspecified


hwapi_dac


Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	This is the interface to the digital converters. Each converter must implement the interface in a particular class
Author	ismael
Create Date Time	Sep 25, 2012 12:34:57 PM
Last Modified	Oct 8, 2012 12:11:32 PM


Attributes

package options : string			
Author	ismael		
Create Date Time	Oct 1, 2012 12:13:58 PM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	 string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


package freq : float			
Author	ismael		
Create Date Time	Oct 1, 2012 12:14:07 PM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	 float		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


package block_len : int			
Author	ismael		
Create Date Time	Oct 1, 2012 12:14:12 PM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package sampleType : int			
Author	ismael		
Create Date Time	Oct 1, 2012 12:14:17 PM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		



package address : string			
Author	ismael		
Create Date Time	Oct 1, 2012 12:15:06 PM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	 string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package ts_begin_fnc : fncPtr			
Author	ismael		
Create Date Time	Oct 1, 2012 7:13:34 PM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type Modifier	*		
Type	fncPtr		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package thread_prio : int			
Author	ismael		
Create Date Time	Oct 1, 2012 7:17:42 PM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


package sync_clock : boolean			
Author	ismael		
Create Date Time	Oct 1, 2012 7:17:51 PM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	 boolean		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Operations

public open (address : string, options : string)			
Parameters	address		
	Multiplicity	Unspecified	
	Author	ismael	
	Create Date Time	Oct 1, 2012 12:14:54 PM	
	Last Modified	Oct 8, 2012 12:33:16 AM	
	Type	 string	
	Direction	inout	
	Dotnet Code Detail	N/A	
	options		
	Multiplicity	Unspecified	
	Author	ismael	
	Create Date Time	Oct 1, 2012 12:14:54 PM	
	Last Modified	Oct 8, 2012 12:33:16 AM	
	Type	 string	
	Direction	inout	
	Dotnet Code Detail	N/A	
	Static	false	
	Leaf	false	
Documentation	Configures the converter but does not start sampling		
Author	ismael		
Create Date Time	Oct 1, 2012 12:14:42 PM		
Last Modified	Oct 8, 2012 12:33:16 AM		
Ordered	false		
Unique	true		


Dotnet Code Detail	N/A
Query	false


public close ()	
Static	false
Leaf	false
Author	ismael
Create Date Time	Oct 1, 2012 12:14:54 PM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public set_scheduler (ts_begin_fnc : fncPtr, thread_prio : int)		
Parameters	ts_begin_fnc	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 1, 2012 7:18:20 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	fncPtr
	Direction	inout
	Dotnet Code Detail	N/A
	thread_prio	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 1, 2012 7:18:20 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
	Static	false
	Leaf	false
	Documentation	Indicates that the timeslot is governed by DAC clock. Sets syncClock=TRUE and saves tsBeginFnc and threadPrio.
	Author	ismael
	Create Date Time	Oct 1, 2012 7:17:58 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Ordered	false
	Unique	true


Dotnet Code Detail	N/A
Query	false



public start ()	
Static	false
Leaf	false
Documentation	Starts sampling. If syncClock==TRUE, create a thread that runs runSyncThread() function with priority threadPrio. If syncClock==FALSE, the transmission and reception of data to/from the converter is governed by the kernel timer thread. the creation of the thread is optional, depending on the behavior of the channel Queues.
Author	ismael
Create Date Time	Oct 1, 2012 7:17:26 PM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public set_opts (opts : string)		
Parameters	opts	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 18, 2012 10:10:28 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 string
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Sep 18, 2012 10:10:21 AM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

public set_freq (freq : float)		
Parameters	freq	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 18, 2012 10:10:57 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 float
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Sep 18, 2012 10:10:45 AM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

public set_block_len (len : int)		
Parameters	len	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 18, 2012 10:11:29 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Sep 18, 2012 10:11:23 AM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


public set_sample_type (type : int)		
Parameters	type	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 1, 2012 12:14:34 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Oct 1, 2012 12:14:28 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


public set_bufferSz (in : int, out : int)		
Parameters	in	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 1, 2012 1:04:38 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
	out	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 1, 2012 1:04:38 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Oct 1, 2012 1:04:18 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


public channel (int ch) : hwapi_dacchannel		
Parameters	int ch	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 6, 2012 12:34:48 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Oct 6, 2012 12:34:38 PM	
Last Modified	Oct 8, 2012 12:11:32 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


private run_sync_thread ()	
Static	false
Leaf	false
Documentation	Infinite loop. Each loop, a block of blockSize samples is sent/recv to/from the converter from a given buffer associated with each channel Queue. After this call, the thread calls tsBeginFnc() function, which will post the processing threads semaphores, indicating the start of a new timeslot
Author	ismael
Create Date Time	Oct 1, 2012 7:20:19 PM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

Relationships

Unnamed Association		
To (channels)	Name	Value
	End Model Element	 hwapi_dacchannel
	Author	ismael
	Create Date Time	Oct 1, 2012 12:12:40 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	dac_channel_MAX
	Visibility	private
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 1, 2012 12:12:40 PM	
Last Modified	Oct 8, 2012 12:11:32 PM	
Derived	false	

Unnamed Generalization		
To	 hwapi_dacuhd	
Author	ismael	
Create Date Time	Oct 1, 2012 1:23:18 PM	
Last Modified	Oct 8, 2012 12:11:32 PM	
Substitutable	false	
Visibility	Unspecified	

Unnamed Generalization		
To	 hwapi_dacx5	
Author	ismael	
Create Date Time	Oct 1, 2012 1:23:21 PM	
Last Modified	Oct 8, 2012 12:11:32 PM	
Substitutable	false	
Visibility	Unspecified	

Unnamed Association		
From	Name	Value
	End Model Element	 hwapi
	Author	ismael
	Create Date Time	Oct 6, 2012 10:49:36 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 10:49:36 AM	
Last Modified	Oct 8, 2012 12:11:32 PM	
Derived	false	

hwapi_processerrors

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Stereotypes	enumeration
Author	ismael
Create Date Time	Oct 4, 2012 9:08:54 AM
Last Modified	Oct 8, 2012 1:22:50 PM

Attributes

public OK : int 0			
Stereotypes	Constant		
Author	ismael		
Create Date Time	Oct 4, 2012 9:09:01 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	int 0		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public RTFAULT : int 1			
Stereotypes	Constant		
Author	ismael		
Create Date Time	Oct 4, 2012 9:09:09 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	int 1		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public SIGSEGV : int 2			
Stereotypes	Constant		
Author	ismael		
Create Date Time	Oct 4, 2012 9:09:27 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	int 2		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public RUNERROR : int 3			
Stereotypes	Constant		
Author	ismael		
Create Date Time	Oct 4, 2012 9:09:37 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	int 3		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		





Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false


Documentation	This is the module's interface to ALOE. It provides functions for creation of interfaces, global variables, pre-initialized values, log files and time counters. See swapi_module class for information on how to define a module.
Author	ismael
Create Date Time	Sep 17, 2012 12:52:20 AM
Last Modified	Oct 8, 2012 12:11:32 PM


Attributes

package module : nod_module			
Author	ismael		
Create Date Time	Sep 18, 2012 9:54:02 AM		
Last Modified	Oct 8, 2012 11:30:37 AM		
Type	 nod_module		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package tstamp : int			
Author	ismael		
Create Date Time	Oct 2, 2012 12:53:18 PM		
Last Modified	Oct 8, 2012 10:47:05 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package probeltf : hwapi_itfphysic			
Author	ismael		
Create Date Time	Oct 3, 2012 11:23:51 AM		
Last Modified	Oct 8, 2012 12:11:32 PM		
Type	 hwapi_itfphysic		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package changing_status : boolean			
Author	ismael		
Create Date Time	Oct 3, 2012 11:34:19 AM		
Last Modified	Oct 8, 2012 10:47:05 AM		
Initial Value	false		
Type	 boolean		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


package closed_resources : boolean			
Author	ismael		
Create Date Time	Oct 3, 2012 8:46:24 PM		
Last Modified	Oct 8, 2012 10:47:05 AM		
Initial Value	false		
Type	 boolean		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


Operations

public exit ()	
Static	false
Leaf	false
Documentation	This function is called by the sStop() function and the _abort() functions. It removes the module from the execution pipeline in ProcThread. The next timeslot the module won't be executed.
Author	ismael
Create Date Time	Oct 3, 2012 8:53:03 PM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public tstamp () : int	
Static	false
Leaf	false
Documentation	Returns the module's timestamp. This is the number of timeslots that the object has executed the INIT an RUN states. This function is always successful.
Author	ismael
Create Date Time	Sep 17, 2012 7:45:40 PM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true


Dotnet Code Detail	N/A
Query	false

public counter_create (name : string) : swapi_counter		
Parameters	name	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 7:48:30 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 string
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	1) Find an empty space in +counters 2) call counters[i].create(name) 3) return &counters[i]	
Author	ismael	
Create Date Time	Sep 17, 2012 7:48:12 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

public log_create (name : string) : swapi_log		
Parameters	name	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 3, 2012 8:51:36 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 string
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	1) Find an empty space in +logs 2) call logs[i].create(name) 3) return &logs[i]	
Author	ismael	
Create Date Time	Oct 3, 2012 8:51:29 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	


Unique	true
Dotnet Code Detail	N/A
Query	false

private call_status (fnc : fncPtr)		
Parameters	fnc	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 3, 2012 12:38:51 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	fncPtr
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	wrapper to the module's skeleton new state function.	
Author	ismael	
Create Date Time	Oct 3, 2012 12:38:26 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

private report_variable (variable : module_variable)		
Parameters	variable	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 3, 2012 12:39:07 PM
	Last Modified	Oct 8, 2012 11:30:37 AM
	Type	 module_variable
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Use the probeltf to send the variable.reportPacket to the manager	
Author	ismael	
Create Date Time	Oct 3, 2012 12:38:51 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	

Dotnet Code Detail	N/A
Query	false

Relationships


Unnamed Association		
From	Name	Value
	End Model Element	 hwapi_process
	Author	ismael
	Create Date Time	Oct 7, 2012 2:03:04 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 7, 2012 2:03:04 PM	
Last Modified	Oct 8, 2012 12:39:02 AM	
Derived	false	


hwapi_itfqueue


Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	<p>A Queue is an interface used for inter-module communications. It implements the methods of the Interface class only.</p> <p>Not yet specified. Possibly use a third party library.</p>

Author	ismael
Create Date Time	Sep 17, 2012 5:44:23 PM
Last Modified	Oct 8, 2012 1:37:53 PM

Relationships

Unnamed Generalization	
To	 hwapi_dacchannel
Author	ismael
Create Date Time	Sep 18, 2012 10:12:39 AM
Last Modified	Oct 8, 2012 12:11:32 PM
Substitutable	false
Visibility	Unspecified


Unnamed Association		
From	Name	Value
	End Model Element	 hwapi
	Author	ismael
	Create Date Time	Oct 6, 2012 12:16:29 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 12:16:29 PM	
Last Modified	Oct 8, 2012 12:11:32 PM	
Derived	false	


Unnamed Generalization	
From	 hwapi_itf
Author	ismael
Create Date Time	Sep 18, 2012 9:48:11 AM
Last Modified	Oct 8, 2012 12:11:32 PM
Substitutable	false
Visibility	Unspecified


hwapi_process

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	<p>A Hwapi Process is defined as dynamically loaded shared library with two symbols that *MUST* be defined:</p> <ul style="list-style-type: none"> - <code>_startup(arg0,arg1)</code>: This function is called at load-time and is not subject to real-time constraints. - <code>_runCycle()</code>: This function is called each time-slot and is subject to real-time constraints. <p>It is used to load and execute signal processing waveform modules.</p> <p>The Hwapi.Process objects are instantiated by <code>Base.initializeNode()</code> function at boot. A call to <code>create()</code> loads the module into memory. A call to <code>startup()</code> calls the <code>_startup()</code> function and a call to places the <code>_runCycle()</code> function into the pipelined execution queue (see Proc-Thread class)</p>
Author	ismael
Create Date Time	Sep 18, 2012 1:00:28 AM
Last Modified	Oct 8, 2012 11:30:37 AM


Attributes


package pid : int			
Author	ismael		
Create Date Time	Sep 18, 2012 1:27:24 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package binary_path : string			
Documentation	Path to the process binary program code. It can be a program or dynamic library, depending on the platform (dynamic library in linux).		
Author	ismael		
Create Date Time	Sep 18, 2012 1:27:33 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	 string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package exec_position : int			
Documentation	Execution position in the pipeline.		
Author	ismael		
Create Date Time	Sep 18, 2012 1:27:52 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Initial Value	0		
Type	 int		
Allow Empty Name	false		


Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package processor_idx : int			
Author	ismael		
Create Date Time	Sep 24, 2012 12:09:06 PM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Initial Value	0		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


package handle : void			
Author	ismael		
Create Date Time	Oct 2, 2012 10:11:38 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type Modifier	*		
Type	 void		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


package run_point : fncPtr			
Author	ismael		
Create Date Time	Oct 3, 2012 11:50:23 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	fncPtr		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


package abort_point : fncPtr			
Author	ismael		
Create Date Time	Oct 3, 2012 9:08:23 PM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type Modifier	*		
Type	fncPtr		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package runnable : boolean			
Author	ismael		
Create Date Time	Oct 3, 2012 9:33:02 PM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	 boolean		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package finish_callback : fncPtr			
Author	ismael		
Create Date Time	Oct 4, 2012 1:28:56 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type Modifier	*		
Type	fncPtr		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package finish_code : int			
Author	ismael		
Create Date Time	Oct 4, 2012 1:30:40 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package module : nod_module			
Author	ismael		
Create Date Time	Oct 4, 2012 1:34:46 AM		
Last Modified	Oct 8, 2012 11:30:37 AM		
Type	 nod_module		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package error_msg : string			
Author	ismael		
Create Date Time	Oct 4, 2012 9:12:10 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	 string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Operations

public launch ()	
Static	false
Leaf	false
Documentation	<p>Loads the library into memory and prepares its execution.</p> <ol style="list-style-type: none"> 1) If pid>0, the slot is already in use, return error 2) Generate a new pid 3) handle=dlopen(binary_path, RTDL_NOW); to dynamically load the shared library. 4) run_point=dlsym(handle, _run_cycle); 5) start_point=dlsym(handle, _abort); 6) save pointer to allocated pipeline: self->pipeline=hwapi->pipelines[self->processor_idx];
Author	ismael
Create Date Time	Sep 17, 2012 1:01:44 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


public remove ()	
Static	false
Leaf	false
Documentation	<ol style="list-style-type: none"> 1) Call hwapi_pipeline_remove(self->pipeline,self); 2) Call to dlclose(handle) 3) Set pid=0 4) if finishCallback!=null, call the function
Author	ismael


Create Date Time	Sep 17, 2012 1:06:53 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


public pid ()	
Static	false
Leaf	false
Documentation	Returns the process id.
Author	ismael
Create Date Time	Sep 24, 2012 11:43:33 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


public run ()	
Static	false
Leaf	false
Documentation	Adds the process to the pipeline queue of the corresponding pipeline object, that is hwapi_pipeline_add(self->pipeline,self)
Author	ismael
Create Date Time	Oct 3, 2012 11:44:41 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

Relationships

Unnamed Association		
To (+swapi_context)	Name	Value
	End Model Element	 swapi
	Author	ismael
	Create Date Time	Oct 7, 2012 2:03:04 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 7, 2012 2:03:04 PM	
Last Modified	Oct 8, 2012 12:39:02 AM	
Derived	false	

Unnamed Association		
From	Name	Value
	End Model Element	 hwapi
	Author	ismael
	Create Date Time	Oct 6, 2012 10:49:40 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 10:49:40 AM	
Last Modified	Oct 8, 2012 12:39:02 AM	
Derived	false	

Unnamed Association		
From (pipeline)	Name	Value
	End Model Element	 hwapi_pipeline
	Author	ismael
	Create Date Time	Oct 6, 2012 2:49:57 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	public
	Aggregation Kind	Composited
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 2:49:57 PM	
Last Modified	Oct 8, 2012 10:44:21 AM	
Derived	false	


Unnamed Association		
From	Name	Value
	End Model Element	 nod_module
	Author	ismael
	Create Date Time	Oct 4, 2012 9:26:18 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 4, 2012 9:26:18 AM	
Last Modified	Oct 8, 2012 11:30:37 AM	
Derived	false	



nod_module

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	Stores the attributes of waveform module.
Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 9, 2012 12:20:53 PM

Operations


package serialize (pkt : packet)

Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 13, 2012 11:03:03 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	call module_serialize()	
Author	ismael	
Create Date Time	Sep 13, 2012 10:30:12 PM	
Last Modified	Oct 9, 2012 12:20:53 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

package unserializeTo (pkt : packet, dest : serializable)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
	dest	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 serializable
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	call module_unserialize()	
Author	ismael	
Create Date Time	Sep 14, 2012 1:49:55 PM	

Last Modified	Oct 9, 2012 12:20:53 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

Relationships


Unnamed Association		
To (module)	Name	Value
	End Model Element	 hwapi_process
	Author	ismael
	Create Date Time	Oct 4, 2012 9:26:18 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	package
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 4, 2012 9:26:18 AM	
Last Modified	Oct 8, 2012 11:30:37 AM	
Derived	false	

hwapi_dacchannel

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Author	ismael
Create Date Time	Sep 17, 2012 7:36:05 PM
Last Modified	Oct 8, 2012 12:11:32 PM

Relationships


Unnamed Generalization	
From	 hwapi_itfqueue
Author	ismael
Create Date Time	Sep 18, 2012 10:12:39 AM
Last Modified	Oct 8, 2012 12:11:32 PM
Substitutable	false
Visibility	Unspecified


Unnamed Association		
From	Name	Value
	End Model Element	 hwapi_dac
	Author	ismael
	Create Date Time	Oct 1, 2012 12:12:40 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 1, 2012 12:12:40 PM	
Last Modified	Oct 8, 2012 12:11:32 PM	
Derived	false	


hwapi_itfphysic

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	In linux, physical interfaces are TCP/IP Ethernet interfaces. They inherit from the Interface abstract class. Supported protocols are TCP and UDP. Modes can be IN, which creates an input socket and accepts the connection in TCP; or OUT, which creates the output socket.
Author	ismael
Create Date Time	Sep 17, 2012 1:01:01 AM
Last Modified	Oct 8, 2012 12:11:32 PM


Attributes


package sock_fd : int			
Author	ismael		
Create Date Time	Sep 26, 2012 10:56:17 AM		
Last Modified	Oct 8, 2012 10:40:34 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


package conn_fd : int			
Author	ismael		
Create Date Time	Sep 26, 2012 11:02:34 AM		
Last Modified	Oct 8, 2012 10:40:34 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package is_tcp : boolean			
Author	ismael		
Create Date Time	Sep 26, 2012 11:25:18 AM		
Last Modified	Oct 8, 2012 10:40:34 AM		
Type	 boolean		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


package sock_addr : sockaddr			
Author	ismael		
Create Date Time	Sep 26, 2012 11:26:48 AM		
Last Modified	Oct 8, 2012 10:40:34 AM		
Type	sockaddr		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package name : string			
Author	ismael		
Create Date Time	Sep 30, 2012 11:03:39 AM		
Last Modified	Oct 8, 2012 10:40:34 AM		
Type	 string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package connected : boolean			
Author	ismael		
Create Date Time	Oct 1, 2012 11:37:44 AM		
Last Modified	Oct 8, 2012 10:40:34 AM		
Type	 boolean		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package id : int			
Author	ismael		
Create Date Time	Oct 2, 2012 12:19:05 PM		
Last Modified	Oct 8, 2012 10:40:34 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		



Operations



public create (address : string)		
Parameters	address	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 26, 2012 11:23:58 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 string
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Creates and connects the interface. The +name and +mode attributes *MUST* be filled before calling to this method. Address format is: "proto://ip_address:port" where proto is "tcp" or "udp".	
Author	ismael	
Create Date Time	Sep 14, 2012 1:06:27 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


public connect ()	
Static	false
Leaf	false
Author	ismael
Create Date Time	Sep 27, 2012 2:48:21 PM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public disconnect ()	
Static	false
Leaf	false
Documentation	<p>If mode=out:</p> <ol style="list-style-type: none"> 1) call shutdown() 2) read until error connection closed 3) close fd (not socket) 4) set connected=false <p>If mode=in</p> <ol style="list-style-type: none"> 1) read until error connection closed 2) close fd (not socket) 3) set connected=false
Author	ismael
Create Date Time	Oct 1, 2012 11:30:43 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


public remove ()	
Static	false
Leaf	false
Documentation	Close the interfaces and clears resources
Author	ismael
Create Date Time	Sep 17, 2012 1:07:33 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public recv (buffer : void, len : int)		
Parameters	buffer	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 1:08:19 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	 void
	Direction	inout
	Dotnet Code Detail	N/A
	len	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 1:08:19 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Sep 12, 2012 1:50:47 AM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


public send (buffer : void, len : int)		
Parameters	buffer	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 1:08:16 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	 void
	Direction	inout
	Dotnet Code Detail	N/A
	len	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 1:08:16 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Sep 12, 2012 1:50:47 AM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


public set_blocking (block : boolean)		
Parameters	block	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 26, 2012 11:40:23 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 boolean
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Sep 26, 2012 11:40:10 AM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

public get_blocking () : boolean	
Static	false
Leaf	false
Author	ismael
Create Date Time	Sep 26, 2012 11:40:23 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public request_ptr (size : int) : void		
Parameters	size	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 7:34:46 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Sep 17, 2012 7:34:36 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Type Modifier	*	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


public release_ptr (ptr : void)		
Parameters	ptr	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 24, 2012 12:01:02 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	 void
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Sep 24, 2012 12:00:05 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

public put_ptr (ptr : void)		
Parameters	ptr	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 24, 2012 12:01:02 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	 void
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Sep 24, 2012 12:00:05 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

public set_callback (fnc : fncPtr, prio : int)		
Parameters	fnc	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 18, 2012 10:18:31 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	fncPtr
	Direction	inout
	Dotnet Code Detail	N/A
	prio	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 4, 2012 9:57:17 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	

Documentation	Adds a callback handler to the interface with priority prio. This function creates a thread with priority prio which blocks at recv infinitely. When the packet is received, fnc() is called. Note that the behavior is unspecified if another thread calls and a packet arrives. If the handler pointer is zero, the handler is removed.
Author	ismael
Create Date Time	Sep 18, 2012 10:16:28 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

Relationships


Unnamed Association		
From	Name	Value
	End Model Element	 hwapi
	Author	ismael
	Create Date Time	Oct 6, 2012 10:49:30 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 10:49:30 AM	
Last Modified	Oct 8, 2012 12:11:32 PM	
Derived	false	

Unnamed Generalization	
From	 hwapi_itf
Author	ismael
Create Date Time	Sep 18, 2012 9:48:09 AM
Last Modified	Oct 8, 2012 12:11:32 PM
Substitutable	false
Visibility	Unspecified

hwapi_dacx5

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Author	ismael
Create Date Time	Oct 1, 2012 1:23:11 PM
Last Modified	Oct 8, 2012 12:11:32 PM

Relationships


Unnamed Generalization	
From	 hwapi_dac
Author	ismael
Create Date Time	Oct 1, 2012 1:23:21 PM
Last Modified	Oct 8, 2012 12:11:32 PM
Substitutable	false
Visibility	Unspecified

hwapi_dacuhd

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	Implementation of the DAC interface to the Universal Hardware Driver (UHD) for USRP family of devices.
Author	ismael

Create Date Time	Oct 1, 2012 1:23:04 PM
Last Modified	Oct 8, 2012 12:11:32 PM

Relationships

Unnamed Generalization	
From	 hwapi_dac
Author	ismael
Create Date Time	Oct 1, 2012 1:23:18 PM
Last Modified	Oct 8, 2012 12:11:32 PM
Substitutable	false
Visibility	Unspecified


hwapi_pipeline


Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	<p>A ProcThread is a POSIX-thread that runs in a single processor core with real-time priority and FIFO-scheduling (non-preemptable). It has a queue of function pointers which are called one after another. This functions are supposed to run SP tasks.</p> <p>The thread is synchronized with the kernel-thread with a shared memory POSIX semaphore. At the beginning of the timeslot, the kernel-thread actives a semaphore indicating the Proc-Thread may start its execution. After all functions are called, the Proc-Thread blocks on the semaphore again.</p> <p>These threads are detachable.</p>
Author	ismael
Create Date Time	Sep 24, 2012 2:05:17 PM
Last Modified	Oct 8, 2012 12:39:02 AM


Attributes

public semaphore : semaphore	
Documentation	Semaphore to synchronize the execution with the kernel-thread timer
Author	ismael
Create Date Time	Sep 24, 2012 2:06:00 PM
Last Modified	Oct 8, 2012 12:33:16 AM


Type	semaphore		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

private nof_modules : int			
Author	ismael		
Create Date Time	Sep 24, 2012 2:05:42 PM		
Last Modified	Oct 8, 2012 12:33:16 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public finished : boolean			
Documentation	Indicates if the thread has finished the execution of a time-slot or not.		
Author	ismael		
Create Date Time	Sep 24, 2012 2:06:14 PM		
Last Modified	Oct 8, 2012 12:33:16 AM		
Type	 boolean		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public running_process : hwapi_process			
Documentation	Indicates the execution position of the running module		
Author	ismael		
Create Date Time	Sep 25, 2012 9:38:44 AM		
Last Modified	Oct 8, 2012 12:33:16 AM		
Type	 hwapi_process		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		



public _thread : pthread			
Author	ismael		
Create Date Time	Sep 25, 2012 10:26:07 AM		
Last Modified	Oct 8, 2012 12:33:16 AM		
Type	pthread		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public sig_masked : int			
Documentation	To improve the coexistence between threads and signals, each thread is assigned one of the		
Author	ismael		
Create Date Time	Oct 3, 2012 9:49:01 PM		
Last Modified	Oct 8, 2012 12:33:16 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		


Dotnet Code Detail	N/A
Aggregation	None
Derived Union	false
Read Only	false
Leaf	false


Operations

public run_thread ()	
Static	false
Leaf	false
Documentation	Runs one process after another (calling process[i].run_point()) and then sleeps waiting for the semaphore
Author	ismael
Create Date Time	Sep 24, 2012 2:04:37 PM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public recover_thread (process : hwapi_process, removeProcess : boolean)		
Parameters	process	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 6, 2012 3:32:39 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 hwapi_process
	Direction	inout
	Dotnet Code Detail	N/A
	removeProcess	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 4, 2012 1:21:04 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 boolean
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	This function is called by the kernel or signal threads (despite it is in ProcThread class). It is used to restore the thread execution after a fatal error occurred in a module (e.g. real-	

	time failure or sigsegv). It prevents the running process from executing, creates a new thread associated to the ProcThread object and kills the thread that caused failure.
Author	ismael
Create Date Time	Oct 4, 2012 12:53:49 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


public add (process : hwapi_process)		
Parameters	process	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 25, 2012 9:17:30 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 hwapi_process
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Adds the object process to the position process.exec_position	
Author	ismael	
Create Date Time	Sep 25, 2012 9:17:08 AM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


public remove (proc : hwapi_process)		
Parameters	proc	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 25, 2012 9:17:39 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 hwapi_process
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	

Documentation	Removes the process passed as a parameter
Author	ismael
Create Date Time	Sep 25, 2012 9:17:30 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public sigsegv_handler ()	
Static	false
Leaf	false
Documentation	<p>Handler for (SIGSEGV,SIGILL,SIGFPE,SIGBUS) signals. sigqueue a SIGRTMIN+1,SIGRTMIN+2,SIGRTMIN+3,SIGRTMIN+4 (respectively) with value.si_ptr=&this, set this.thread=NULL and pthread_exit().</p> <p>set runningProcess->finish_code=ProcessorErrorCode.SIGSEGV</p> <p>write to errorMsg string with at least the first function in the callstack (backtrace)</p>
Author	ismael
Create Date Time	Oct 3, 2012 8:10:39 PM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

Relationships

Unnamed Association		
To (hwapi_process[])	Name	Value
	End Model Element	 hwapi_process
	Author	ismael
	Create Date Time	Oct 6, 2012 2:49:57 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	process_x_pipeline_MAX
	Visibility	package
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 2:49:57 PM	
Last Modified	Oct 8, 2012 10:44:21 AM	
Derived	false	

Unnamed Association		
From	Name	Value
	End Model Element	 hwapi
	Author	ismael
	Create Date Time	Oct 6, 2012 10:49:44 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 10:49:44 AM	
Last Modified	Oct 8, 2012 10:44:21 AM	
Derived	false	

hwapi

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	<p>The Base HWAPI class abstracts the platform (OS) and hardware particularities, for instance: timers, shared memory, physical interfaces and process creation/scheduling.</p> <p>Only one instance of this class can be created on each node. This is created by the kernel-thread class at boot of every node or by the Manager process. The hwapi is in charge of controlling thread-local-storage. Therefore, there is no need to pass a pointer to the hwapi context to each function call. In linux, can</p>


	be implemented using POSIX TLS or __thread GCC. However, this is not strictly required since only one execution thread access thread-sensible functions at a time.
Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 9, 2012 12:44:58 PM

Attributes


package ts_begin_fnc : fncPtr			
Author	ismael		
Create Date Time	Oct 1, 2012 7:07:20 PM		
Last Modified	Oct 8, 2012 10:40:34 AM		
Type	fncPtr		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Operations


public initialize_node (config_file : string, ts_begin_fnc : fncPtr)
--

Parameters	config_file	
	Multiplicity	Unspecified
	Documentation	Path to the configuration file (platform.conf)
	Author	ismael
	Create Date Time	Sep 24, 2012 11:13:20 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 string
	Direction	inout
	Dotnet Code Detail	N/A
	ts_begin_fnc	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 1, 2012 7:07:42 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	fncPtr
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	<p>Must be called before any other function.</p> <ol style="list-style-type: none"> 1) Parse configuration file and fill +machine attributes 2) Create interfaces. Call -createNodeInterfaces() 3) Setup synchronization: <ol style="list-style-type: none"> 3.1) If I am the synchronization master, set machine.clockSource=CLOCKSRC_TIMER if source="timer" or machine.clockSource=CLOCKSRC_DAC if source="dac://" 3.2) If I am an slave node, set machine.clockSource=CLOCKSRC_TIMER if continuous_mode=FALSE or machine.clockSource=CLOCKSRC_SYNC if continuous_mode=TRUE 3.3) Set machine.syncContinuous boolean if continuous_mode=TRUE 3.4) Set machine.syncMaster boolean if I am the synchronization master reference 3.5) Set machine.syncPeriod to the synchronization period 4) setup DAC (if my node has a DAC). For each DAC, create an instance of the DAC type and: <ol style="list-style-type: none"> 4.1) Call DAC.openDAC(address,options,null) if machine.clockSource!=CLOCKSRC_DAC 4.2) Call DAC.setScheduler(tsBeginFnc, machine.kernelPrio) if machine.clockSource==CLOCKSRC_DAC 5) create max_queues_x_node +queues and max_modules_x_node +procs objects 	

Author	ismael
Create Date Time	Sep 18, 2012 1:20:56 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

private start_node_interfaces (config_file : string)		
Parameters	config_file	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 9, 2012 11:26:16 AM
	Last Modified	Oct 9, 2012 11:29:23 AM
	Type	 string
	Direction	inout
Static	false	
Leaf	false	
Documentation	<p>1) PhysicIrf.create("tcp://local_ip:ctrl_port") mode in name "ctrl"</p> <p>2) PhysicIrf.create("udp://local_ip:sync_port") mode in name "sync"</p> <p>3) PhysicIrf.create("udp://local_ip:probe_port") mode in name "probe"</p> <p>4) If !multicast, PhysicIrf.create("udp://node_ip:sync_port") mode out name "slavesync%d" for each n in node list</p> <p>5) If multicast, PhysicIrf.create("udp://MULTICAST_GROUP1:sync_port") mode out name "slavesync0" (only one output interface is created)</p> <p>6) Create data interfaces with name "data_id" with id consecutive numbers</p>	
Author	ismael	
Create Date Time	Sep 30, 2012 11:17:17 AM	
Last Modified	Oct 9, 2012 12:44:58 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


public start_manager_interfaces (config_file : string)
--


Parameters	config_file	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 9, 2012 11:26:25 AM
	Last Modified	Oct 9, 2012 11:29:23 AM
	Type	 string
	Direction	inout
Static	false	
Leaf	false	
Documentation	<p>Configures the control, probe and sync interfaces for the manager</p> <p>1) For each node, create an interface with name ctrl_nodename</p> <p>2) For each node, create an interface with name probe_nodename</p> <p>3) if clockLocal create the sync interface to the sync master, with name "sync"</p>	
Author	ismael	
Create Date Time	Oct 9, 2012 11:26:17 AM	
Last Modified	Oct 9, 2012 11:29:23 AM	
Ordered	false	
Unique	true	
Query	false	

public periodic_add (fnc : fncPtr, period : int)		
Parameters	fnc	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 25, 2012 11:19:59 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	fncPtr
	Direction	inout
	Dotnet Code Detail	N/A
	period	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 25, 2012 11:19:59 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A

Static	false
Leaf	false
Documentation	Adds a new periodic function handler to periodicCallbacks
Author	ismael
Create Date Time	Sep 25, 2012 11:19:38 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public periodic_remove (fnc : fncPtr)		
Parameters	fnc	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 6, 2012 12:08:47 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	fncPtr
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Oct 6, 2012 12:08:39 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


public itf_physic_get (name : string) : hwapi_itfphysic		
Parameters	name	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 25, 2012 11:42:50 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 string
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Sep 25, 2012 11:42:32 AM	
Last Modified	Oct 8, 2012 12:11:32 PM	
Type Modifier	*	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


public hwapi_dac_get (address : string) : hwapi_dac		
Parameters	address	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 6, 2012 12:32:52 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 string
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Returns a pointer to the hwapi_dac handler with the same name	
Author	ismael	
Create Date Time	Oct 6, 2012 12:32:44 PM	
Last Modified	Oct 8, 2012 12:11:32 PM	
Type Modifier	*	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


public itf_queue_new () : hwapi_itfqueue	
Static	false
Leaf	false
Documentation	Returns the first queue object instance
Author	ismael
Create Date Time	Oct 6, 2012 12:53:45 PM
Last Modified	Oct 8, 2012 12:11:32 PM
Type Modifier	*
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


public process_new () : hwapi_process	
Static	false
Leaf	false
Documentation	Returns the first empty process instance
Author	ismael
Create Date Time	Oct 6, 2012 12:53:56 PM
Last Modified	Oct 8, 2012 10:44:21 AM
Type Modifier	*
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


Relationships


Unnamed Association		
To (physic_itfs)	Name	Value
	End Model Element	 hwapi_itfphysic
	Author	ismael
	Create Date Time	Oct 6, 2012 10:49:30 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	physic_itf_MAX
	Visibility	private
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 10:49:30 AM	
Last Modified	Oct 8, 2012 12:11:32 PM	
Derived	false	


Unnamed Association		
To (+machine)	Name	Value
	End Model Element	 hwapi_machine
	Author	ismael
	Create Date Time	Oct 6, 2012 10:49:32 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 10:49:32 AM	
Last Modified	Oct 8, 2012 12:39:02 AM	
Derived	false	


Unnamed Association		
To (dacs)	Name	Value
	End Model Element	 hwapi_dac
	Author	ismael
	Create Date Time	Oct 6, 2012 10:49:36 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	dac_MAX
	Visibility	private
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 10:49:36 AM	
Last Modified	Oct 8, 2012 12:11:32 PM	
Derived	false	


Unnamed Association		
To (processes)	Name	Value
	End Model Element	 hwapi_process
	Author	ismael
	Create Date Time	Oct 6, 2012 10:49:40 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	process_MAX
	Visibility	private
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 10:49:40 AM	
Last Modified	Oct 8, 2012 12:39:02 AM	
Derived	false	


Unnamed Association		
To (pipelines)	Name	Value
	End Model Element	 hwapi_pipeline
	Author	ismael
	Create Date Time	Oct 6, 2012 10:49:44 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	pipeline_MAX
	Visibility	package
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 10:49:44 AM	
Last Modified	Oct 8, 2012 10:44:21 AM	
Derived	false	


Unnamed Association		
To (periodic)	Name	Value
	End Model Element	 hwapi_periodic
	Author	ismael
	Create Date Time	Oct 6, 2012 10:49:48 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	periodic_MAX
	Visibility	package
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 10:49:48 AM	
Last Modified	Oct 8, 2012 10:44:21 AM	
Derived	false	

Unnamed Association		
To (time)	Name	Value
	End Model Element	 hwapi_time
	Author	ismael
	Create Date Time	Oct 6, 2012 12:00:50 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	private
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 12:00:50 PM	
Last Modified	Oct 8, 2012 12:39:02 AM	
Derived	false	

Unnamed Association		
To (error)	Name	Value
	End Model Element	 hwapi_error
	Author	ismael
	Create Date Time	Oct 6, 2012 12:02:38 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	private
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 12:02:38 PM	
Last Modified	Oct 8, 2012 12:39:02 AM	
Derived	false	

Unnamed Association		
To (task)	Name	Value
	End Model Element	 hwapi_task
	Author	ismael
	Create Date Time	Oct 6, 2012 12:11:20 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	private
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 12:11:20 PM	
Last Modified	Oct 8, 2012 12:39:02 AM	
Derived	false	

Unnamed Association		
To (queues)	Name	Value
	End Model Element	 hwapi_itfqueue
	Author	ismael
	Create Date Time	Oct 6, 2012 12:16:29 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	itf_queue_MAX
	Visibility	private
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 12:16:29 PM	
Last Modified	Oct 8, 2012 12:11:32 PM	
Derived	false	


Unnamed Association		
From	Name	Value
	End Model Element	 hwapi_kernel
	Author	ismael
	Create Date Time	Oct 7, 2012 7:35:49 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 7, 2012 7:35:49 PM	
Last Modified	Oct 8, 2012 12:39:02 AM	
Derived	false	

hwapi_kernel

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	<p>The HWAPI kernel schedules the execution of the ALOE-Node class and waveform modules in each platform's node. The main() is implemented in this class. When it starts, it creates the HWAPI-base class (which instantiates the rest of hwapi classes) and the ALOE-Node class (which processes commands from the manager). It initializes hardware devices and runs the main kernel timer.</p> <p>The execution timer, in Linux, can be driven from three different sources, chosen from the platform.conf file :</p>

	1) POSIX real-time timer 2) Synchronization packet, through a POSIX semaphore 3) Digital converter, through a POSIX semaphore
Author	ismael
Create Date Time	Sep 17, 2012 9:00:33 PM
Last Modified	Oct 8, 2012 12:39:02 AM

Attributes

private resources_opened : boolean			
Author	ismael		
Create Date Time	Oct 4, 2012 10:30:28 AM		
Last Modified	Oct 8, 2012 12:33:16 AM		
Type	 boolean		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Operations

public main ()	
Static	false
Leaf	false
Author	ismael
Create Date Time	Sep 24, 2012 10:28:24 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

private initialize ()	
Static	false
Leaf	false
Documentation	1) use shm_open("/initTime") and point hwapi.initTime to the shared memory. 2) create sleepSemaphore and all semaphores for all hwapi.procThreads 3) set resourcesCreated=TRUE


	4) block all signals except (SIGSEGV,SIGILL,SIGFPE,SIGBUS). Add ProcThread.sigsegvHandler() to these signals. 5) call hwapi.initialize(configFile,tsBegins) 6) set self priority to hwapi.machine.kernelPrio 7) create timer, hwapi.tslot_sem and hwapi.dac_sem semaphores 8) set initTime to get_time and timeslot to 0 9) Create the SignalThread 10) Create a detachable thread to run(), associate to processor index and priority hwapi.machine.threadPrio
Author	ismael
Create Date Time	Sep 17, 2012 9:01:51 PM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public timer_thread ()	
Static	false
Leaf	false
Author	ismael
Create Date Time	Oct 5, 2012 2:04:09 PM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public sigwait_thread ()	
Static	false
Leaf	false
Documentation	<p>This is a thread with priority kernelPrio that synchronously waits for hwapi_pipeline signals (usign sigwaitinfo). All signals except thread-specific ones (SIGSEGV,SIGILL,SIGBUS,SIGFPE) are blocked by all threads except this one. Thread-specific signals are handled by ProcThreads which send a SIGRTMIN+1,SIGRTMIN+2,SIGRTMIN+3,SIGRTMIN+4 (respectively) to this thread, which takes actions accordingly.</p> <p>for signals SIGRTMIN to SIGRTMIN+4, cast the hwapi_pipeline object from this si_value pointer and call hwapi_pipeline_recover_thread(pipeline, pipeline->running_process, TRUE)</p>
Author	ismael

Create Date Time	Oct 4, 2012 12:45:26 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


private ts_begins ()	
Static	false
Leaf	false
Documentation	synchronizes the timeslot of the processor threads with the kernel thread and calls periodic functions. It also verifies real-time faults
Author	ismael
Create Date Time	Sep 17, 2012 9:01:53 PM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

private rt_fault (process : hwapi_process)		
Parameters	process	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 4, 2012 9:21:25 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 hwapi_process
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	<p>A real-time fault has been detected. if hwapi.machine.rtFaultKill, calls procThread.restoreThread() to kill the runningModule and restore the execution. The process causing the real-time failure is removed from the ProcThread object and a new thread is created beginning the execution with the first element in the pipeline.</p> <p>Set errorCode=RTFAULT value in module's Process object.</p> <p>*NOTE* that meanwhile, the module may be already finished and the next module in the pipeline will still receive an RT-fault. Indeed, when there is an rt-fault it is a system-wide problem, despite identifying which module is causing it is always helpful.</p>	

Author	ismael
Create Date Time	Sep 25, 2012 9:48:54 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public cleanup ()	
Static	false
Leaf	false
Documentation	if resources opene 1) clear shared memory for init_time 2) clear procThread and sleep semaphores.
Author	ismael
Create Date Time	Oct 4, 2012 10:26:05 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


Relationships


Unnamed Association		
To (hwapi)	Name	Value
	End Model Element	 hwapi
	Author	ismael
	Create Date Time	Oct 7, 2012 7:35:49 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	private
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 7, 2012 7:35:49 PM	
Last Modified	Oct 8, 2012 12:39:02 AM	
Derived	false	


hwapi_machine


Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	Public structure configured at initialize() from the information read from platform.conf. Stores some properties of the local machine architecture.
Author	ismael
Create Date Time	Sep 17, 2012 5:51:58 PM
Last Modified	Oct 8, 2012 12:11:32 PM


Attributes


public cpu_type : int			
Author	ismael		
Create Date Time	Sep 17, 2012 5:52:35 PM		
Last Modified	Oct 8, 2012 12:33:16 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public mopts : float			
Author	ismael		
Create Date Time	Sep 17, 2012 5:52:39 PM		
Last Modified	Oct 8, 2012 12:33:16 AM		
Type	 float		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public mbpts : float			
Author	ismael		
Create Date Time	Sep 17, 2012 5:52:44 PM		
Last Modified	Oct 8, 2012 12:33:16 AM		
Type	 float		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public name : string			
Author	ismael		
Create Date Time	Sep 17, 2012 5:52:47 PM		
Last Modified	Oct 8, 2012 12:33:16 AM		
Type	 string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public nof_processors : int			
Author	ismael		
Create Date Time	Sep 25, 2012 10:12:56 AM		
Last Modified	Oct 8, 2012 12:33:16 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public rt_fault_opts : int			
Author	ismael		
Create Date Time	Sep 25, 2012 10:16:56 AM		
Last Modified	Oct 8, 2012 12:33:16 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public kernel_prio : int			
Author	ismael		
Create Date Time	Sep 25, 2012 10:30:52 AM		
Last Modified	Oct 8, 2012 12:33:16 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public pipeline_prio : int			
Author	ismael		
Create Date Time	Sep 25, 2012 10:30:55 AM		
Last Modified	Oct 8, 2012 12:33:16 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public sync_period : int			
Author	ismael		
Create Date Time	Sep 25, 2012 11:15:05 AM		
Last Modified	Oct 8, 2012 12:33:16 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public sync_continuous : boolean			
Author	ismael		
Create Date Time	Sep 25, 2012 11:39:51 AM		
Last Modified	Oct 8, 2012 12:33:16 AM		
Type	 boolean		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public slave_master : boolean			
Author	ismael		
Create Date Time	Sep 26, 2012 1:27:01 PM		
Last Modified	Oct 8, 2012 12:33:16 AM		
Type	 boolean		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public max_waveforms : int			
Author	ismael		
Create Date Time	Oct 1, 2012 7:25:12 PM		
Last Modified	Oct 8, 2012 12:33:16 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public max_modules_x_waveform : int			
Author	ismael		
Create Date Time	Oct 1, 2012 7:25:17 PM		
Last Modified	Oct 8, 2012 12:33:16 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public max_variables_x_module : int			
Author	ismael		
Create Date Time	Oct 1, 2012 7:25:20 PM		
Last Modified	Oct 8, 2012 12:33:16 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Relationships

Unnamed Association		
From	Name	Value
	End Model Element	 hwapi
	Author	ismael
	Create Date Time	Oct 6, 2012 10:49:32 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 10:49:32 AM	
Last Modified	Oct 8, 2012 12:39:02 AM	
Derived	false	


hwapi_time


Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Author	ismael
Create Date Time	Oct 6, 2012 11:58:40 AM
Last Modified	Oct 8, 2012 10:40:34 AM

Attributes

package init_time : time_t

Documentation	Reference time to synchronize timer and indicate the beginning of time.		
Author	ismael		
Create Date Time	Sep 18, 2012 2:01:20 PM		
Last Modified	Oct 8, 2012 10:40:34 AM		
Type Modifier	*		
Type	time_t		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package init_time_is_shm : boolean			
Author	ismael		
Create Date Time	Oct 2, 2012 10:51:11 AM		
Last Modified	Oct 8, 2012 10:40:34 AM		
Type	 boolean		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package ts_cnt : int			
Documentation	Time-slot number. Incremented every event of the kernel-thread timer.		
Author	ismael		
Create Date Time	Sep 18, 2012 2:01:36 PM		
Last Modified	Oct 8, 2012 10:40:34 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		

Multiplicity	Unspecified
Dotnet Code Detail	N/A
Aggregation	None
Derived Union	false
Read Only	false
Leaf	false

Operations

public set (time : time_t)		
Parameters	time	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 25, 2012 12:30:44 PM
	Last Modified	Oct 8, 2012 12:39:02 AM
	Type Modifier	&
	Type	time_t
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	This function is called by syncSlave() in TWO-WAY synchronization mode. It adjusts the local time-slot timer. It has an effect only if clockSource==CLOCKSRC_TIMER	
Author	ismael	
Create Date Time	Sep 25, 2012 12:30:37 PM	
Last Modified	Oct 8, 2012 12:39:02 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


public get (time : time_t)		
Parameters	time	
	Multiplicity	Unspecified
	Documentation	Pointer to the time_t structure.
	Author	ismael
	Create Date Time	Sep 24, 2012 10:46:43 AM
	Last Modified	Oct 8, 2012 12:39:02 AM
	Type Modifier	&
	Type	time_t
	Direction	out
	Dotnet Code Detail	N/A

Static	false
Leaf	false
Documentation	Stores the current time in the structure pointed by time pointer.
Author	ismael
Create Date Time	Sep 17, 2012 5:54:42 PM
Last Modified	Oct 8, 2012 12:39:02 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public slot () : int	
Static	false
Leaf	false
Documentation	returns the time-slot number
Author	ismael
Create Date Time	Sep 18, 2012 2:01:03 PM
Last Modified	Oct 8, 2012 12:39:02 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public time_attach_local ()	
Static	false
Leaf	false
Documentation	Called by the manager if obtains the time from shared memory. 1) call shm_open("/initTime"); and save pointer to init_time. 2) set initTimeShm=TRUE
Author	ismael
Create Date Time	Oct 2, 2012 10:49:43 AM
Last Modified	Oct 8, 2012 12:39:02 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


Relationships

Unnamed Association		
From	Name	Value
	End Model Element	 hwapi
	Author	ismael
	Create Date Time	Oct 6, 2012 12:00:50 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 12:00:50 PM	
Last Modified	Oct 8, 2012 12:39:02 AM	
Derived	false	

hwapi_error

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Author	ismael
Create Date Time	Oct 6, 2012 10:58:54 AM
Last Modified	Oct 8, 2012 10:40:34 AM

Attributes


package code : hwapi_errorcodes			
Author	ismael		
Create Date Time	Oct 6, 2012 11:09:40 AM		
Last Modified	Oct 8, 2012 10:40:34 AM		
Type	 hwapi_errorcodes		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Operations

public string () : char	
Static	false
Leaf	false
Author	ismael
Create Date Time	Oct 6, 2012 11:09:53 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Type Modifier	*
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public code () : hwapi_errorcodes	
Static	false
Leaf	false
Author	ismael
Create Date Time	Oct 7, 2012 7:42:03 PM
Last Modified	Oct 8, 2012 10:40:34 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false



Relationships


Unnamed Association		
From	Name	Value
	End Model Element	 hwapi
	Author	ismael
	Create Date Time	Oct 6, 2012 12:02:38 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 12:02:38 PM	
Last Modified	Oct 8, 2012 12:39:02 AM	
Derived	false	

hwapi_shm

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	A non-instantiable class (no attributes). Just a collection of functions associated to shared memory management.
Author	ismael
Create Date Time	Oct 6, 2012 11:57:22 AM
Last Modified	Oct 8, 2012 1:22:50 PM

Operations

public shm_open (name : string, size : int) : void		
Parameters	name	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 7:37:45 PM
	Last Modified	Oct 8, 2012 12:39:02 AM
	Type	 string
	Direction	inout
	Dotnet Code Detail	N/A
	size	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 1:03:32 AM
	Last Modified	Oct 8, 2012 12:39:02 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
	Static	false
Leaf	false	
Documentation	Creates a shared memory area with a given name and size and returns the pointer to the start of the allocated area. Use a simple library to manage block-based memory pools.	
Author	ismael	
Create Date Time	Sep 17, 2012 1:02:17 AM	
Last Modified	Oct 8, 2012 12:39:02 AM	
Type Modifier	*	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	
public shm_close (ptr : void)		

Parameters	ptr	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 1:08:59 AM
	Last Modified	Oct 8, 2012 12:39:02 AM
	Type Modifier	*
	Type	 void
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Releases the resources of the shared memory pointed by ptr. The memory can't be used after calling this function, and the behavior is unspecified (depends on OS) if done.	
Author	ismael	
Create Date Time	Sep 17, 2012 1:07:18 AM	
Last Modified	Oct 8, 2012 12:39:02 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

hwapi_errorcodes

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Stereotypes	enumeration
Author	ismael
Create Date Time	Oct 6, 2012 11:10:34 AM
Last Modified	Oct 8, 2012 12:11:32 PM

Attributes

public EINVALID			
Stereotypes	Constant		
Author	ismael		
Create Date Time	Oct 6, 2012 11:11:03 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public ENOSPACE			
Stereotypes	Constant		
Author	ismael		
Create Date Time	Oct 6, 2012 11:11:57 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public EEXISTS			
Stereotypes	Constant		
Author	ismael		
Create Date Time	Oct 6, 2012 11:12:01 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public ESYSTEM			
Stereotypes	Constant		
Author	ismael		
Create Date Time	Oct 6, 2012 11:12:20 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public E2BIG			
Stereotypes	Constant		
Author	ismael		
Create Date Time	Oct 6, 2012 11:14:37 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public EOTHER			
Stereotypes	Constant		
Author	ismael		
Create Date Time	Oct 6, 2012 11:15:08 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

hwapi_task


Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Author	ismael
Create Date Time	Oct 6, 2012 12:10:46 PM
Last Modified	Oct 8, 2012 10:40:34 AM




Attributes

package sleep_sem : semaphore			
Author	ismael		
Create Date Time	Oct 2, 2012 11:59:50 AM		
Last Modified	Oct 8, 2012 10:40:34 AM		
Type	semaphore		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Operations


public sleep (sleep_slots : int)		
Parameters	sleep_slots	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 2, 2012 11:59:39 AM
	Last Modified	Oct 8, 2012 12:39:02 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	<p>The calling thread is blocked until "tslot" timeslot. Only one thread can call this function at a time</p> <p>1) If sleepTstamp>0, another thread is waiting, return ERR 2) set sleepTstamp=tslot; 3) wait for semaphore 4) on return, set sleepTstamp=0</p>	
Author	ismael	
Create Date Time	Oct 2, 2012 11:59:29 AM	
Last Modified	Oct 8, 2012 12:39:02 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

public _new (fnc : fncPtr, arg : void)		
Parameters	fnc	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 3, 2012 12:03:22 PM
	Last Modified	Oct 8, 2012 12:39:02 AM
	Type	fncPtr
	Direction	inout
	Dotnet Code Detail	N/A
	arg	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 3, 2012 12:03:22 PM
	Last Modified	Oct 8, 2012 12:39:02 AM
	Type Modifier	*
	Type	 void
	Direction	inout
	Dotnet Code Detail	N/A
	Static	false
Leaf	false	
Documentation	Creates a new thread with normal priority, that is, no real-time priority. The thread is detachable, meaning that runs the function pointed by the first parameter and then is destroyed, ignoring the returned value.	
Author	ismael	
Create Date Time	Oct 3, 2012 12:03:04 PM	
Last Modified	Oct 8, 2012 12:39:02 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	
public new_prio (fnc : fncPtr, arg : void, prio : int, cpu : int)		

Parameters	fnc	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 4, 2012 10:33:57 AM
	Last Modified	Oct 8, 2012 12:39:02 AM
	Type	fncPtr
	Direction	inout
	Dotnet Code Detail	N/A
	arg	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 4, 2012 10:33:57 AM
	Last Modified	Oct 8, 2012 12:39:02 AM
	Type Modifier	*
	Type	 void
	Direction	inout
	Dotnet Code Detail	N/A
	prio	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 4, 2012 10:33:57 AM
	Last Modified	Oct 8, 2012 12:39:02 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
	cpu	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 4, 2012 10:33:57 AM
	Last Modified	Oct 8, 2012 12:39:02 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	All threads are created with detachable state.	
Author	ismael	
Create Date Time	Oct 4, 2012 10:33:40 AM	
Last Modified	Oct 8, 2012 12:39:02 AM	

Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

Relationships


Unnamed Association		
From	Name	Value
	End Model Element	 hwapi
	Author	ismael
	Create Date Time	Oct 6, 2012 12:11:20 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 12:11:20 PM	
Last Modified	Oct 8, 2012 12:39:02 AM	
Derived	false	


hwapi_periodic

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Author	ismael
Create Date Time	Sep 25, 2012 11:16:34 AM
Last Modified	Oct 8, 2012 10:40:34 AM


Attributes

package callback : fncPtr			
Author	ismael		
Create Date Time	Sep 25, 2012 11:16:47 AM		
Last Modified	Oct 8, 2012 10:40:34 AM		
Type	fncPtr		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package period : int			
Author	ismael		
Create Date Time	Sep 25, 2012 11:17:02 AM		
Last Modified	Oct 8, 2012 10:40:34 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package counter : int			
Author	ismael		
Create Date Time	Sep 25, 2012 11:22:27 AM		
Last Modified	Oct 8, 2012 10:40:34 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


Relationships

Unnamed Association		
From	Name	Value
	End Model Element	 hwapi
	Author	ismael
	Create Date Time	Oct 6, 2012 10:49:48 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 10:49:48 AM	
Last Modified	Oct 8, 2012 10:44:21 AM	
Derived	false	




hwapi_file

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	A non-instantiable class (no attributes). Just a collection of functions associated to file management.
Author	ismael
Create Date Time	Oct 6, 2012 11:57:55 AM
Last Modified	Oct 8, 2012 12:39:02 AM




Operations

public file_open (name : string) : int		
Parameters	name	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 3, 2012 12:23:28 PM
	Last Modified	Oct 8, 2012 12:39:02 AM
	Type	 string
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Accesses the filesystem under the relative path machine.filesystem. Files are opened in r/w mode always. Returns the file descriptor	
Author	ismael	
Create Date Time	Oct 3, 2012 12:23:21 PM	
Last Modified	Oct 8, 2012 12:39:02 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

public file_write (fd : int, buffer : void, size : int)		
---	--	--

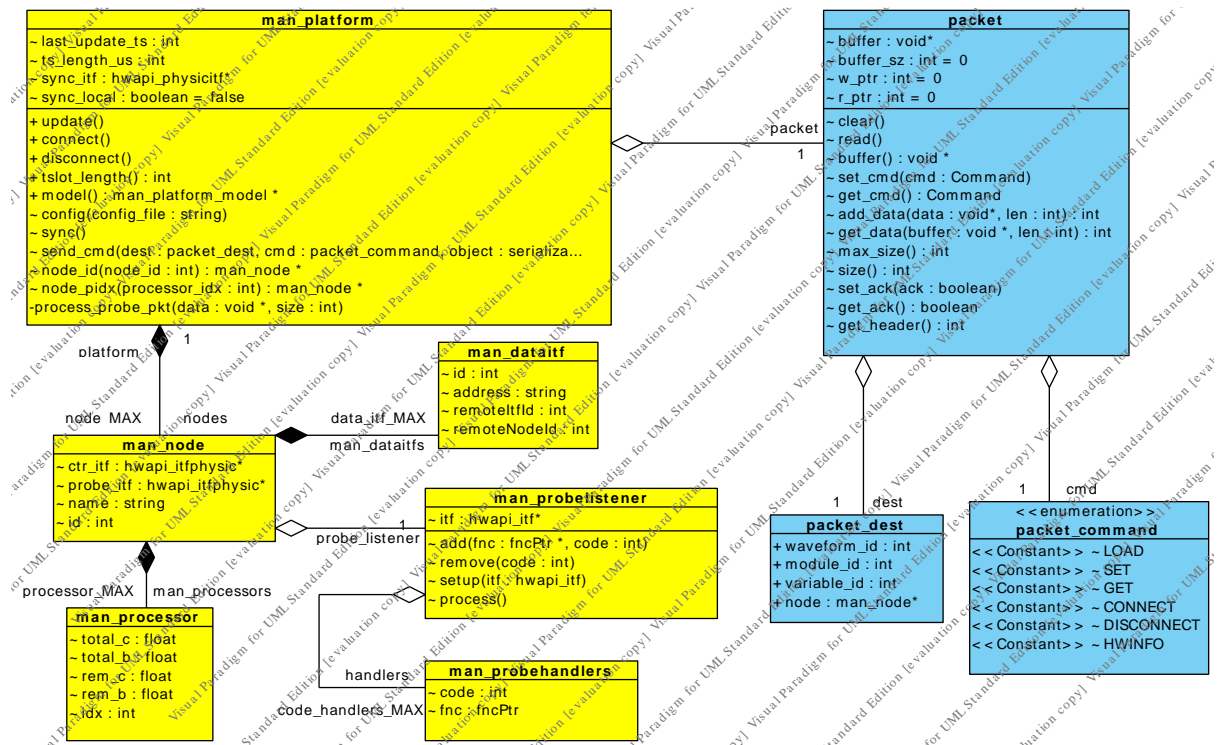
Parameters	fd	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 3, 2012 12:24:07 PM
	Last Modified	Oct 8, 2012 12:39:02 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
	buffer	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 3, 2012 12:24:07 PM
	Last Modified	Oct 8, 2012 12:39:02 AM
	Type Modifier	*
	Type	 void
	Direction	inout
	Dotnet Code Detail	N/A
	size	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 3, 2012 12:24:07 PM
	Last Modified	Oct 8, 2012 12:39:02 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Writes buffer to file	
Author	ismael	
Create Date Time	Oct 3, 2012 12:23:28 PM	
Last Modified	Oct 8, 2012 12:39:02 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

```
public file_read (fd : int, buffer : void, size : int)
```

Parameters	fd	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 3, 2012 12:24:18 PM
	Last Modified	Oct 8, 2012 12:39:02 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
	buffer	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 3, 2012 12:24:18 PM
	Last Modified	Oct 8, 2012 12:39:02 AM
	Type Modifier	*
	Type	 void
	Direction	inout
	Dotnet Code Detail	N/A
	size	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 3, 2012 12:24:18 PM
	Last Modified	Oct 8, 2012 12:39:02 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	reads file and stores in buffer	
Author	ismael	
Create Date Time	Oct 3, 2012 12:24:12 PM	
Last Modified	Oct 8, 2012 12:39:02 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

Class Diagram

man_platform and package



Name	Value
Name	man_platform and package
Author	ismael
Create Date Time	Oct 9, 2012 11:36:42 AM
Last Modified	Oct 9, 2012 11:56:39 AM

Summary

Name	Documentation
man_platform	<p>The CmdPlatform class manages the hardware parts of the platform. This config() function does not follow the platform-independence rules and is platform-dependant, because it reads the platform configuration file, which is particularized for a given platform (in this case, linux platform). The rest of the functions are platform-independent.</p> <p>Sample platform configuration file format (libconfig format, see http://www.hyperrealm.com/libconfig/test.cfg.txt):</p> <pre> ===== platform: { timeslot=100; // in microseconds. The time-slot is unique for the platform. /* other platform-wide options */ </pre>

```

mapping:
{
    algorithm="tw";
    options="";
};

manager:
{
    ip_address="192.168.1.1"; // IP address of the host where the
manager will be executed
    clock_local=TRUE;      // If it runs in a node, it can obtain the
timing using shared memory IPC. If set to false, it will obtain timing from
synchronization.master
};

network:
{
    ctrl ={port=7000; proto="tcp";}      // The manager connects to each
node using this port
    probe={port=7001; proto="udp";}      // The manager connects to
each node using this port
    sync ={port=7002; proto="udp";}      // Each node creates a listening
socket on this range of ports
    data ={ports=[7003,7010]: proto="udp";} /* These are the ports used
for data interfaces. Each port is used to open a socket for every module-
to-module link.

                                In this example, each physical interface
creates 7 ports, therefore up to logical links between modules can be
used

                                in this physical interface */
};

};

node:
{
    name="node1";
    ip_address=["192.168.1.1","224.0.0.1"]; /* Comma-separated
multiple ip's are supported.

                                Specifying a multi-cast address is
useful for continuous synchronization with several nodes */
    cpu={mops=XXX; mbps=YYY; };
    scheduling={type=""; options=""; };

    dac=(
        {type="uhd"; address="usrp1"; options=""; }, // This indicates
node1 has physical access to a AD/DA converter. supported
types={"uhd","x5"}

                                // options string is passed as a
parameter to DAC.create() function. See particular DAC documentation

```



```

        { /* other dacs */ }
    );

    other_options:
    {
        rt_control="soft";          /* RT-Fault if first module ("soft") or last
module ("hard") still executing at begin of timeslot */
        rt_fault="kill";           /* Kill waveform ("kill") or just print
warning message ("print") */
        kernel_prio=60;            /* Kernel timer thread priority
(default=90) */
        proc_prio=59;              /* processor threads priority
(default=89) */

        /* The following three optional values control the amount of
memory that is preallocated at boot */
        max_waveforms=20;          /* (optional) maximum number of
waveform objects that can be used. Default=20 */
        max_modules_x_waveform=20; /* (optional) maximum
number of module objects per waveform that can be used. Default=20 */
        max_variables_x_module=20; /* (optional) maximum number
of variable objects per module that can be used. Default=20 */
        max_modules_x_node=20;     /* (optional) maximum number
of module objects per node that can be launched. Default=20 */
        max_queues_x_node=20;      /* (optional) maximum number
of queues per node that are created. Default=20 */
    };
};




node:
{
    // node2 has IP address 192.168.1.2
    name="node2";
    ip_address=["192.168.1.2"];
    cpu={mops=XXX; mbps=YYY; };
    scheduling={type=""; options=""; };






    other_options { rt_control="hard"; rt_fault="print";
}

synchronization:
{
    master="node1";
    source="timer"; /* Options: "timer" for local timer; "dac://
dac_name" to get clock from dac interrupts (master node needs access
to the dac) */

    continuous_mode=TRUE; /* Sends one packet at the beginning of
the timeslot, which drives the slave timeslot clock. */
    /* If FALSE, slaves request synchronization packet
every "period" timeslots */
    period=100; /* Synchronization period. Ignored if
continuous_mode=FALSE */

```

	<pre> multicast=TRUE; /* If platform.manager.sync.proto="udp" and continuous_mode=TRUE, using multicast has better performance. */ }; data_interfaces= ({src="node1"; dst="node2"; bw=10.0; duplex="half"; /* node1 has an output interface to node2. bw is the interface bandwidth in MBPS */ /* "nodeName:IPindex" optionally indicates the IP index in ip_address (default=0) {/* more interfaces here */}); </pre> <p>=====</p>
 packet	<p>This class generates and reads the contents of a control packet, managing the specific header requirements (in the future, should support different kinds of endianness). The buffer is statically allocated at object creation.</p> <p>Call pkt.add_data() to generate the packet before transmitting the pkt.buffer() buffer of size pkt.size().</p> <p>At reception, the user must call pkt.read() before using it.</p> <p>The maximum control packet size is 64 Kbytes. Control packets in ALOE include a header with 4 32-bit words:</p> <ol style="list-style-type: none"> 1) Packet Info 2) Destination Waveform Id 3) Destination Module Id 4) Destination Variable Id <p>The first word (Packet info) contains the following information (from LSB to MSB):</p> <ol style="list-style-type: none"> 1) 0..7 MANAGER->NODE: Magic word to check if it is a control packet. 0xAF NODE->MANAGER: 0xF0 if command successful or 0x0F if command error. 2) 8..15 command word (integer, up to 256 commands are supported) 3) 16..31 packet size in bytes (integer, up to 65536 bytes can be transferred) <p>Data follows after.</p>
 man_dataitf	<p>A physical data interface connects one node with another. This is the interface used by modules data exchange. Implements Serializable interface and just copies/saves attributes in both methods.</p>
 man_node	<p>A node is a collection of processors sharing memory. It may have data interfaces to other nodes. It implements Serializable interface and just copies all attributes</p>

 man_probelistener	Adds a set of callback-code pairs to an interface. When a new packet arrives, it calls the callback associated to the code that matches the first 32-bit word of the packet. It is used for asynchronous node->manager communication. Basically for statistics reports and execution error notifications.
 packet_command	Command type constants
 packet_dest	
 man_processor	A processing unit inside a Node (e.g. a core in a multi-core system). By definition, it must share memory with other Processors in the Node. Therefore, only one instance of an ALOE-Node object runs on each Node. Implements serialize and unserializeTo methods. Just copies all attributes.
 man_probhandlers	Database of handlers associated to an Interface

Details

man_platform

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	<p>The CmdPlatform class manages the hardware parts of the platform. This config() function does not follow the platform-independence rules and is platform-dependant, because it reads the platform configuration file, which is particularized for a given platform (in this case, linux platform). The rest of the functions are platform-independent.</p> <p>Sample platform configuration file format (libconfig format, see http://www.hyperrealm.com/libconfig/test.cfg.txt):</p> <pre>===== platform: { timeslot=100; // in microseconds. The time-slot is unique for the platform. /* other platform-wide options */ mapping: { algorithm="tw";</pre>

```

options="";
};

manager:
{
    ip_address="192.168.1.1"; // IP address of the host where
the manager will be executed
    clock_local=TRUE;        // If it runs in a node, it can obtain
the timing using shared memory IPC. If set to false, it will obtain
timing from synchronization.master
};

network:
{
    ctrl={port=7000; proto="tcp";} // The manager connects
to each node using this port
    probe={port=7001; proto="udp";} // The manager
connects to each node using this port
    sync={port=7002; proto="udp";} // Each node creates a
listening socket on this range of ports
    data={ports=[7003,7010]: proto="udp";} /* These are the
ports used for data interfaces. Each port is used to open a
socket for every module-to-module link.

                                In this example, each physical
interface creates 7 ports, therefore up to logical links between
modules can be used

                                in this physical interface */
};

};

node:
{
    name="node1";
    ip_address=["192.168.1.1","224.0.0.1"]; // Comma-
separated multiple ip's are supported.

                                Specifying a multi-cast
address is useful for continuous synchronization with several
nodes */
    cpu={mops=XXX; mbps=YYY; };
    scheduling={type=""; options=""; };

    dac=(
        {type="uhd"; address="usrp1"; options=""; }, // This
indicates node1 has physical access to a AD/DA converter.
supported types={"uhd","x5"}

                                // options string is passed
as a parameter to DAC.create() function. See particular DAC
documentation
        { /* other dacs */ }
    );
};

```

```

other_options:
    { rt_control="soft";          /* RT-Fault if first module
("soft") or last module ("hard") still executing at begin of timeslot
*/
      rt_fault="kill";          /* Kill waveform ("kill") or just
print warning message ("print") */
      kernel_prio=60;           /* Kernel timer thread priority
(default=90) */
      proc_prio=59;             /* processor threads priority
(default=89) */

      /* The following three optional values control the amount
of memory that is preallocated at boot */
      max_waveforms=20;         /* (optional) maximum
number of waveform objects that can be used. Default=20 */
      max_modules_x_waveform=20; /* (optional)
maximum number of module objects per waveform that can be
used. Default=20 */
      max_variables_x_module=20; /* (optional) maximum
number of variable objects per module that can be used.
Default=20 */
      max_modules_x_node=20;     /* (optional) maximum
number of module objects per node that can be launched.
Default=20 */
      max_queues_x_node=20;     /* (optional) maximum
number of queues per node that are created. Default=20 */
    };
};

node:
{
    // node2 has IP address 192.168.1.2
    name="node2";
    ip_address=["192.168.1.2"];
    cpu={mops=XXX; mbps=YYY; };
    scheduling={type=""; options=""; };

    other_options { rt_control="hard"; rt_fault="print";
}


synchronization:
{
    master="node1";
    source="timer";             /* Options: "timer" for local timer;
"dac://dac_name" to get clock from dac interrupts (master node
needs access to the dac) */

    continuous_mode=TRUE; /* Sends one packet at the
beginning of the timeslot, which drives the slave timeslot clock.
*/

```

	<pre> /* If FALSE, slaves request synchronization packet every "period" timeslots */ period=100; /* Synchronization period. Ignored if continuous_mode=FALSE */ multicast=TRUE; /* If platform.manager.sync.proto="udp" and continuous_mode=TRUE, using multicast has better performance. */ }; data_interfaces= ({src="node1"; dst="node2"; bw=10.0; duplex="half"; / * node1 has an output interface to node2. bw is the interface bandwidth in MBPS */ /* "nodeName:IPindex" optionally indicates the IP index in ip_address (default=0) {/* more interfaces here */}); ===== </pre>
Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 9, 2012 12:40:54 PM


Attributes

package last_update_ts : int			
Author	ismael		
Create Date Time	Sep 14, 2012 1:08:42 PM		
Last Modified	Oct 8, 2012 8:29:02 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package ts_length_us : int	
Documentation	Time-slot duration, in microseconds
Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 8, 2012 8:29:02 PM

Type	int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package sync_itf : hwapi_physicif			
Author	ismael		
Create Date Time	Oct 9, 2012 11:29:35 AM		
Last Modified	Oct 9, 2012 11:30:33 AM		
Type Modifier	*		
Type	hwapi_physicif		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package sync_local : boolean			
Author	ismael		
Create Date Time	Oct 9, 2012 11:30:43 AM		
Last Modified	Oct 9, 2012 11:31:29 AM		
Initial Value	false		
Type	 boolean		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Operations

public update ()	
Static	false
Leaf	false
Documentation	For each node, send a HWINFO command. Save the contents of the received packet into node.hwinfo structure
Author	ismael
Create Date Time	Sep 14, 2012 1:08:35 PM
Last Modified	Oct 8, 2012 8:29:02 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public connect ()	
Static	false
Leaf	false
Documentation	1) For each node, call node[i].ctrltlf.connect() and node[i].probeltf.connect() 3) If syncLocal==false, syncltf.connect() 4) For each node, send Cmd.CONNECT command
Author	ismael
Create Date Time	Sep 26, 2012 10:34:31 AM
Last Modified	Oct 8, 2012 8:29:02 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public disconnect ()	
Static	false
Leaf	false
Documentation	1) For each node, send Cmd.DISCONNECT command 2) For each node, call node.ctrltlf.close(), node.probeltf.close() 3) call syncltf.close()
Author	ismael
Create Date Time	Sep 26, 2012 10:38:38 AM
Last Modified	Oct 8, 2012 8:29:02 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public tslot_length () : int	
Static	false
Leaf	false
Author	ismael
Create Date Time	Oct 8, 2012 6:21:40 PM
Last Modified	Oct 8, 2012 8:29:02 PM
Ordered	false
Unique	true
Query	false



public model () : man_platform_model	
Static	false
Leaf	false
Author	ismael
Create Date Time	Oct 8, 2012 8:25:45 PM
Last Modified	Oct 9, 2012 11:08:36 AM
Type Modifier	*
Ordered	false
Unique	true
Query	false


package config (config_file : string)		
Parameters	config_file	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 12, 2012 1:50:47 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	string
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	<p>Initializes the HWAPI and reads and parses the platform configuration file with path "configFile". It must be called before calling any other function.</p> <ol style="list-style-type: none"> 1) Parse "configFile" 2) Call hwapi_create_manager_itfs(configFile) 3) Configure clock: <ol style="list-style-type: none"> 3.1) If clockLocal==TRUE, call hwapi_attach_local_time() and set sync_local=TRUE 3.2) Otherwise, set sync_itf=hwapi_physicif_get("sync"); and set sync_local=FALSE 4) For each node 	


	<p>4.1) Configure node, processor and interfaces instances</p> <p>4.2) set node[i].ctrl_itf=hwapi_itfphysic_get("ctrl_nodename") where nodename is the node name</p> <p>4.3) set node[i].probe_itf=hwapi_itfphysic_get("probe_nodename") where nodename is the node name</p> <p>4.4) Add asyncError to all probe interfaces listeners. Node.probeListener.addCallback(process_probe_pkt)</p> <p>5) Create C, B, I platform model from the nodes and data interfaces specified in the configuration file</p> <p>The function must check that the configuration file parameters are correct, issuing warnings when necessary</p>
Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 9, 2012 11:31:29 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

package sync ()	
Static	false
Leaf	false
Author	ismael
Create Date Time	Sep 18, 2012 10:15:45 AM
Last Modified	Oct 8, 2012 8:29:02 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false



package send_cmd (dest : packet_dest, cmd : packet_command, object : serializable) : packet

Parameters	dest	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 12, 2012 1:50:47 AM
	Last Modified	Oct 9, 2012 11:17:52 AM
	Type	 packet_dest
	Direction	inout
	Dotnet Code Detail	N/A
	cmd	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 9, 2012 11:11:50 AM
	Last Modified	Oct 9, 2012 11:17:52 AM
	Type	packet_command
	Direction	inout
	object	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 13, 2012 11:10:34 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 serializable
	Direction	out
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Sends Command to Node destination attaching the sendObj serializable object. Calls serialize(sendObj) function to serialize object data to the packet.	
Author	ismael	
Create Date Time	Sep 12, 2012 1:50:47 AM	
Last Modified	Oct 9, 2012 12:40:54 PM	
Type Modifier	*	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


package node_id (node_id : int) : man_node		
Parameters	node_id	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 9, 2012 11:16:34 AM
	Last Modified	Oct 9, 2012 11:17:52 AM
	Type	 int
	Direction	inout
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Oct 9, 2012 11:16:06 AM	
Last Modified	Oct 9, 2012 11:17:52 AM	
Type Modifier	*	
Ordered	false	
Unique	true	
Query	false	


package node_pidx (processor_idx : int) : man_node		
Parameters	processor_idx	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 9, 2012 11:03:43 AM
	Last Modified	Oct 9, 2012 11:08:36 AM
	Type	 int
	Direction	inout
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Oct 9, 2012 11:03:18 AM	
Last Modified	Oct 9, 2012 11:17:52 AM	
Type Modifier	*	
Ordered	false	
Unique	true	
Query	false	

private process_probe_pkt (data : void, size : int)

Parameters	data	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 4, 2012 9:32:45 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	 void
	Direction	inout
	Dotnet Code Detail	N/A
	size	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 4, 2012 10:19:03 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	<p>Processes asynchronous execution error messages from nodes. The format of the asyncError packet is as follows:</p> <p>1st 32-bit word: Waveform id 2st 32-bit word: Module id 3st 32-bit word: Error code Next: errorMsg string</p> <p>@mayChange: For any error message!=OK, set STOP status to the waveform that caused it and print message to SDTDOUT.</p>	
Author	ismael	
Create Date Time	Oct 4, 2012 9:31:39 AM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

Relationships

Unnamed Association		
To (nodes)	Name	Value
	End Model Element	 man_node
	Author	ismael
	Create Date Time	Sep 12, 2012 1:50:47 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	node_MAX
	Visibility	package
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Sep 12, 2012 1:50:47 AM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	

Unnamed Association		
To (packet)	Name	Value
	End Model Element	 packet
	Author	ismael
	Create Date Time	Oct 9, 2012 11:37:46 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	package
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 9, 2012 11:37:46 AM	
Last Modified	Oct 9, 2012 11:39:16 AM	
Derived	false	

packet

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	<p>This class generates and reads the contents of a control packet, managing the specific header requirements (in the future, should support different kinds of endianness). The buffer is statically allocated at object creation.</p> <p>Call <code>pkt.add_data()</code> to generate the packet before transmitting the <code>pkt.buffer()</code> buffer of size <code>pkt.size()</code>.</p> <p>At reception, the user must call <code>pkt.read()</code> before using it.</p>


	<p>The maximum control packet size is 64 Kbytes. Control packets in ALOE include a header with 4 32-bit words:</p> <ol style="list-style-type: none"> 1) Packet Info 2) Destination Waveform Id 3) Destination Module Id 4) Destination Variable Id <p>The first word (Packet info) contains the following information (from LSB to MSB):</p> <ol style="list-style-type: none"> 1) 0..7 MANAGER->NODE: Magic word to check if it is a control packet. 0xAF NODE->MANAGER: 0xF0 if command successful or 0x0F if command error. 2) 8..15 command word (integer, up to 256 commands are supported) 3) 16..31 packet size in bytes (integer, up to 65536 bytes can be transferred) <p>Data follows after.</p>
Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 9, 2012 12:07:31 PM


Attributes

package buffer : ALOEClasses.Utils.void			
Documentation	This is the pointer to the packet buffer. The buffer is statically allocated at object creation.		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 1:01:34 PM		
Type Modifier	*		
Type	ALOEClasses.Utils.void		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package buffer_sz : int

Documentation	Size of the packet buffer		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 1:01:34 PM		
Initial Value	0		
Type	int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package w_ptr : int			
Documentation	Packet write pointer		
Author	ismael		
Create Date Time	Sep 19, 2012 7:43:35 PM		
Last Modified	Oct 8, 2012 1:01:34 PM		
Initial Value	0		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package r_ptr : int			
Documentation	Packet read pointer		
Author	ismael		
Create Date Time	Sep 19, 2012 7:44:50 PM		
Last Modified	Oct 8, 2012 1:01:34 PM		
Initial Value	0		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false

Derived	false
Multiplicity	Unspecified
Dotnet Code Detail	N/A
Aggregation	None
Derived Union	false
Read Only	false
Leaf	false

Operations

package clear ()	
Static	false
Leaf	false
Documentation	Clears the packet contents and its header (including command type)
Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 8, 2012 1:01:34 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

package read ()	
Static	false
Leaf	false
Documentation	Reads the packet header. This function must be called at reception before calling get_cmd() or get_data().
Author	ismael
Create Date Time	Sep 19, 2012 7:53:48 PM
Last Modified	Oct 8, 2012 1:01:34 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

package buffer () : void	
Static	false
Leaf	false
Documentation	Returns a pointer to the packet buffer (for transmission and reception through the interface functions)
Author	ismael
Create Date Time	Sep 19, 2012 7:45:43 PM

Last Modified	Oct 8, 2012 1:01:34 PM
Type Modifier	*
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false



package set_cmd (cmd : Command)		
Parameters	cmd	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 12, 2012 1:50:47 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	Command
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Defines the command field on the packet header.	
Author	ismael	
Create Date Time	Sep 12, 2012 1:50:47 AM	
Last Modified	Oct 8, 2012 1:01:34 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

package get_cmd () : Command	
Static	false
Leaf	false
Documentation	returns the command field from the packet header.
Author	ismael
Create Date Time	Sep 13, 2012 8:56:26 PM
Last Modified	Oct 8, 2012 1:01:34 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

package add_data (data : void*, len : int) : int


Parameters	data	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 12, 2012 1:50:47 AM
	Last Modified	Oct 9, 2012 10:25:18 AM
	Type	void*
	Direction	inout
	Dotnet Code Detail	N/A
	len	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 12, 2012 1:50:47 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Appends "len" bytes from "data" pointer to the end of the packet unless there is not enough space in the packet. Returns the number of bytes that where successfully appended.	
Author	ismael	
Create Date Time	Sep 12, 2012 1:50:47 AM	
Last Modified	Oct 8, 2012 1:01:34 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

```
package get_data (buffer : void, len : int) : int
```

Parameters	buffer	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 19, 2012 7:55:59 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	 void
	Direction	inout
	Dotnet Code Detail	N/A
	len	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 19, 2012 7:55:12 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Copies "len" bytes of the packet data to the buffer pointed by "buffer" unless the packet has no more data to read. Returns the number of bytes that were successfully copied.	
Author	ismael	
Create Date Time	Sep 19, 2012 7:54:59 PM	
Last Modified	Oct 8, 2012 1:01:34 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

package max_size () : int	
Static	false
Leaf	false
Documentation	Returns the maximum size of the packet (in bytes)
Author	ismael
Create Date Time	Sep 13, 2012 8:57:08 PM
Last Modified	Oct 8, 2012 1:01:34 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


package size () : int	
Static	false
Leaf	false
Documentation	Returns the current size of the packet (in bytes)
Author	ismael
Create Date Time	Sep 14, 2012 12:40:56 AM
Last Modified	Oct 8, 2012 1:01:34 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


package set_ack (ack : boolean)		
Parameters	ack	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 19, 2012 8:59:34 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 boolean
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Sep 19, 2012 8:59:20 PM	
Last Modified	Oct 8, 2012 1:01:34 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


package get_ack () : boolean	
Static	false
Leaf	false
Author	ismael
Create Date Time	Sep 19, 2012 8:59:34 PM
Last Modified	Oct 8, 2012 1:01:34 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

package get_header () : int	
Static	false
Leaf	false
Documentation	returns the first 32-bit word of the packet
Author	ismael
Create Date Time	Oct 4, 2012 10:14:23 AM
Last Modified	Oct 8, 2012 1:01:34 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

Relationships

Unnamed Association		
To (cmd)	Name	Value
	End Model Element	 packet_command
	Author	ismael
	Create Date Time	Sep 13, 2012 9:57:26 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Sep 13, 2012 9:57:26 PM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	

Unnamed Association		
To (dest)	Name	Value
	End Model Element	 packet_dest
	Author	ismael
	Create Date Time	Oct 9, 2012 11:08:09 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 9, 2012 11:08:09 AM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	

Unnamed Association		
From	Name	Value
	End Model Element	 man_platform
	Author	ismael
	Create Date Time	Oct 9, 2012 11:37:46 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 9, 2012 11:37:46 AM	
Last Modified	Oct 9, 2012 11:39:16 AM	
Derived	false	


man_datatf


Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	A physical data interface connects one node with another. This is the interface used by modules data exchange. Implements Serializable interface and just copies/saves attributes in both methods.
Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 9, 2012 12:07:31 PM

Attributes


package id : int			
Documentation	Unique physical interface id in the node		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 8:29:02 PM		
Type	int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package address : string			
Documentation	Interface address (see platform.conf in CmdPlatform class)		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 8:29:02 PM		
Type	string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package remoteltfld : int			
Author	ismael		
Create Date Time	Oct 2, 2012 12:31:35 PM		
Last Modified	Oct 8, 2012 8:29:02 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package remoteNodeId : int			
Author	ismael		
Create Date Time	Oct 2, 2012 12:31:42 PM		
Last Modified	Oct 8, 2012 8:29:02 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


Relationships


Unnamed Association		
From	Name	Value
	End Model Element	 man_node
	Author	ismael
	Create Date Time	Sep 12, 2012 1:50:47 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	package
	Aggregation Kind	Composited
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Sep 12, 2012 1:50:47 AM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	

man_node

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	A node is a collection of processors sharing memory. It may have data interfaces to other nodes. It implements Serializable interface and just copies all attributes
Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 9, 2012 12:07:31 PM


Attributes

package ctr_itf : hwapi_itfphysic			
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 9, 2012 11:29:23 AM		
Type Modifier	*		
Type	 hwapi_itfphysic		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


package probe_itf : hwapi_itfphysic			
Author	ismael		
Create Date Time	Oct 9, 2012 11:21:32 AM		
Last Modified	Oct 9, 2012 11:29:23 AM		
Type Modifier	*		
Type	 hwapi_itfphysic		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


package name : string			
Documentation	Name of the node, as specified in platform.conf in CmdPlatform class		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 8:29:02 PM		
Type	string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		


Multiplicity	Unspecified
Dotnet Code Detail	N/A
Aggregation	None
Derived Union	false
Read Only	false
Leaf	false


package id : int			
Author	ismael		
Create Date Time	Oct 2, 2012 12:31:25 PM		
Last Modified	Oct 8, 2012 8:29:02 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Relationships

Unnamed Association		
To (man_dataitfs)	Name	Value
	End Model Element	 man_dataitf
	Author	ismael
	Create Date Time	Sep 12, 2012 1:50:47 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	data_itf_MAX
	Visibility	package
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Sep 12, 2012 1:50:47 AM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	

Unnamed Association		
To (man_processors)	Name	Value
	End Model Element	 man_processor
	Author	ismael
	Create Date Time	Sep 12, 2012 1:50:47 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	processor_MAX
	Visibility	package
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Sep 12, 2012 1:50:47 AM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	


Unnamed Association		
To (probe_listener)	Name	Value
	End Model Element	 man_probelistener
	Author	ismael
	Create Date Time	Oct 4, 2012 10:02:35 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	package
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 4, 2012 10:02:35 AM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	

Unnamed Association		
From (platform)	Name	Value
	End Model Element	 man_platform
	Author	ismael
	Create Date Time	Sep 12, 2012 1:50:47 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	package
	Aggregation Kind	Composited
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Sep 12, 2012 1:50:47 AM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	


man_probelistener

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	Adds a set of callback-code pairs to an interface. When a new packet arrives, it calls the callback associated to the code that matches the first 32-bit word of the packet. It is used for asynchronous node->manager communication. Basically for statistics reports and execution error notifications.
Author	ismael
Create Date Time	Oct 4, 2012 9:41:48 AM
Last Modified	Oct 9, 2012 12:07:31 PM


Attributes

package itf : hwapi_itf			
Author	ismael		
Create Date Time	Sep 26, 2012 12:05:53 PM		
Last Modified	Oct 9, 2012 11:29:23 AM		
Type Modifier	*		
Type	 hwapi_itf		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Operations

package add (fnc : fncPtr, code : int)		
Parameters	fnc	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 4, 2012 9:42:28 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	fncPtr
	Direction	inout
	Dotnet Code Detail	N/A
	code	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 4, 2012 10:03:35 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Oct 4, 2012 9:42:15 AM	
Last Modified	Oct 8, 2012 11:20:37 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


package remove (code : int)		
Parameters	code	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 4, 2012 9:42:36 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Oct 4, 2012 9:42:28 AM	
Last Modified	Oct 8, 2012 11:20:37 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


package setup (itf : hwapi_itf)		
Parameters	itf	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 4, 2012 10:05:22 AM
	Last Modified	Oct 8, 2012 12:11:32 PM
	Type	 hwapi_itf
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Sets process() function as a callback to the interface. Use priority 0 (non-realtime)	
Author	ismael	
Create Date Time	Oct 4, 2012 10:04:20 AM	
Last Modified	Oct 8, 2012 11:20:37 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

package process ()

Static	false
Leaf	false
Documentation	Called when a new packet arrives, receives it from the interface and uses the CmdPacket interface to read the first 32-bit word of the packet, find the associated handler and call it, passing the packet data pointer and size as first and second parameters.
Author	ismael
Create Date Time	Oct 4, 2012 10:07:36 AM
Last Modified	Oct 8, 2012 8:29:02 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

Relationships

Unnamed Association		
To (handlers)	Name	Value
	End Model Element	 man_probehandlers
	Author	ismael
	Create Date Time	Sep 19, 2012 5:27:57 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	code_handlers_MAX
	Visibility	package
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Sep 19, 2012 5:27:57 PM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	

Unnamed Association		
From	Name	Value
	End Model Element	 man_node
	Author	ismael
	Create Date Time	Oct 4, 2012 10:02:35 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 4, 2012 10:02:35 AM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	

packet_command

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Stereotypes	enumeration
Documentation	Command type constants
Author	ismael
Create Date Time	Sep 13, 2012 9:55:48 PM
Last Modified	Oct 9, 2012 12:07:31 PM

Attributes

package LOAD			
Stereotypes	Constant		
Documentation	Loads a waveform		
Author	ismael		
Create Date Time	Sep 13, 2012 9:56:15 PM		
Last Modified	Oct 8, 2012 11:30:37 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package SET			
Stereotypes	Constant		
Documentation	Modifies a node object instance		
Author	ismael		
Create Date Time	Sep 24, 2012 12:58:38 PM		
Last Modified	Oct 8, 2012 11:30:37 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package GET			
Stereotypes	Constant		
Documentation	Reads a node object instance		
Author	ismael		
Create Date Time	Sep 24, 2012 12:58:41 PM		
Last Modified	Oct 8, 2012 11:30:37 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		

Dotnet Code Detail	N/A
Aggregation	None
Derived Union	false
Read Only	false
Leaf	false


package CONNECT			
Stereotypes	Constant		
Documentation	Node connects output interfaces		
Author	ismael		
Create Date Time	Sep 26, 2012 10:41:28 AM		
Last Modified	Oct 8, 2012 11:30:37 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package DISCONNECT			
Stereotypes	Constant		
Documentation	Node closes all connections		
Author	ismael		
Create Date Time	Sep 26, 2012 10:41:32 AM		
Last Modified	Oct 8, 2012 11:30:37 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package HWINFO			
Stereotypes	Constant		
Documentation	Obtains hardware information (+machine structure in HWAPI)		
Author	ismael		

Create Date Time	Oct 5, 2012 3:22:48 PM		
Last Modified	Oct 8, 2012 11:30:37 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


Relationships


Unnamed Association		
From	Name	Value
	End Model Element	 packet
	Author	ismael
	Create Date Time	Sep 13, 2012 9:57:26 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Sep 13, 2012 9:57:26 PM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	


packet_dest


Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Author	ismael
Create Date Time	Oct 9, 2012 11:06:59 AM
Last Modified	Oct 9, 2012 12:07:31 PM

Attributes


public waveform_id : int			
Author	ismael		
Create Date Time	Oct 9, 2012 11:07:29 AM		
Last Modified	Oct 9, 2012 11:08:36 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public module_id : int			
Author	ismael		
Create Date Time	Oct 9, 2012 11:07:36 AM		
Last Modified	Oct 9, 2012 11:08:36 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public variable_id : int			
Author	ismael		
Create Date Time	Oct 9, 2012 11:07:38 AM		
Last Modified	Oct 9, 2012 11:08:36 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public node : man_node			
Author	ismael		
Create Date Time	Oct 9, 2012 11:09:50 AM		
Last Modified	Oct 9, 2012 11:17:52 AM		
Type Modifier	*		
Type	 man_node		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Relationships

Unnamed Association		
From	Name	Value
	End Model Element	 packet
	Author	ismael
	Create Date Time	Oct 9, 2012 11:08:09 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 9, 2012 11:08:09 AM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	

man_processor

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	A processing unit inside a Node (e.g. a core in a multi-core system). By definition, it must share memory with other Processors in the Node. Therefore, only one instance of an ALOE-Node object runs on each Node. Implements serialize and unserializeTo methods. Just copies all attributes.
Author	ismael

Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 9, 2012 12:07:31 PM

Attributes


package total_c : float			
Documentation	Total processor capacity, in MOPS		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 9, 2012 9:52:06 AM		
Type	float		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package total_b : float			
Documentation	Total internal processor bandwidth (i.e. memory bandwidth). In MBPS		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 9, 2012 9:52:06 AM		
Type	float		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


package rem_c : float			
Documentation	Remaining processor capacity, in MOPS		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 9, 2012 9:52:06 AM		

Type	float		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package rem_b : float			
Documentation	Remaining internal bandwidth (in MBPS)		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 9, 2012 9:52:06 AM		
Type	float		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package idx : int			
Documentation	Processor index in the node		
Author	ismael		
Create Date Time	Sep 21, 2012 12:37:15 AM		
Last Modified	Oct 9, 2012 9:52:06 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


Relationships

Unnamed Association		
From	Name	Value
	End Model Element	 man_node
	Author	ismael
	Create Date Time	Sep 12, 2012 1:50:47 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	package
	Aggregation Kind	Composited
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Sep 12, 2012 1:50:47 AM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	

man_probhandlers


Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	Database of handlers associated to an Interface
Author	ismael
Create Date Time	Sep 19, 2012 5:27:21 PM
Last Modified	Oct 9, 2012 12:07:31 PM

Attributes

package code : int			
Author	ismael		
Create Date Time	Sep 19, 2012 5:27:26 PM		
Last Modified	Oct 8, 2012 11:10:36 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

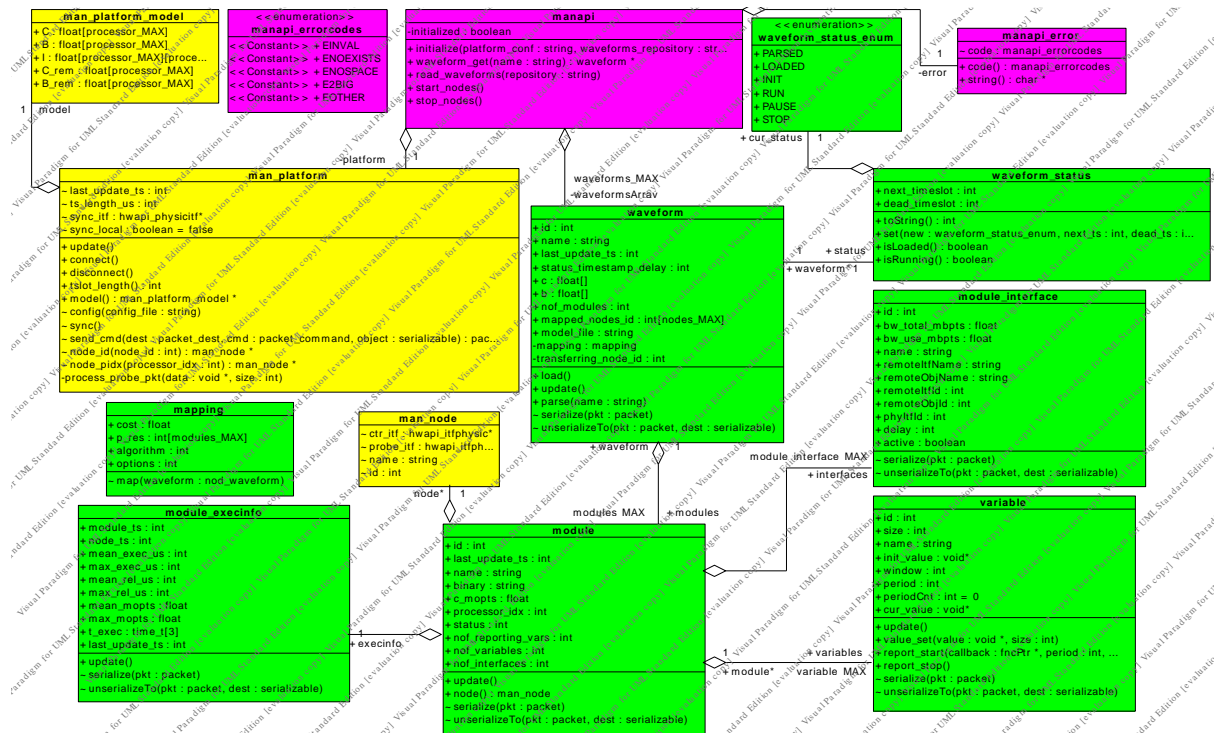
package fnc : fncPtr			
Author	ismael		
Create Date Time	Sep 19, 2012 5:27:33 PM		
Last Modified	Oct 8, 2012 11:10:36 AM		
Type	fncPtr		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Relationships

Unnamed Association		
From	Name	Value
	End Model Element	 man_probelistener
	Author	ismael
	Create Date Time	Sep 19, 2012 5:27:57 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Sep 19, 2012 5:27:57 PM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	

Class Diagram

manager



Name	Value
Name	manager
Author	ismael
Create Date Time	Oct 5, 2012 3:49:30 PM
Last Modified	Oct 9, 2012 1:13:54 PM

Summary

Name	Documentation
man_platform_model	
manapi_errorcodes	
manapi	<p>The front-end to the CmdAPI Interface. Does not add any extra functionality except for facilitating the platform management.</p> <p>On initialize(), creates a CmdPlatform object and nof_waveforms CmdWaveform objects. Those classes implement the platform management. The CmdFrontEnd just implements some functions to get the CmdWaveform object from the array.</p> <p>Typically, an object of this class is invoked by a thread running in the manager node (any node in the platform) with non-rt priority. This thread is in charge of parsing stdin user commands and calling the appropriate methods for each class. This class may also be used from a GUI, for instance.</p>
waveform_status_enum	

manapi_error	
man_platform	<p>The CmdPlatform class manages the hardware parts of the platform. This config() function does not follow the platform-independence rules and is platform-dependant, because it reads the platform configuration file, which is particularized for a given platform (in this case, linux platform). The rest of the functions are platform-independent.</p> <p>Sample platform configuration file format (libconfig format, see http://www.hyperrealm.com/libconfig/test.cfg.txt):</p> <p>=====</p> <pre> platform: { timeslot=100; // in microseconds. The time-slot is unique for the platform. /* other platform-wide options */ mapping: { algorithm="tw"; options=""; }; manager: { ip_address="192.168.1.1"; // IP address of the host where the manager will be executed clock_local=TRUE; // If it runs in a node, it can obtain the timing using shared memory IPC. If set to false, it will obtain timing from synchronization.master }; network: { ctrl ={port=7000; proto="tcp";} // The manager connects to each node using this port probe={port=7001; proto="udp";} // The manager connects to each node using this port sync ={port=7002; proto="udp";} // Each node creates a listening socket on this range of ports data ={ports=[7003,7010]: proto="udp";} /* These are the ports used for data interfaces. Each port is used to open a socket for every module- to-module link. In this example, each physical interface creates 7 ports, therefore up to logical links between modules can be used in this physical interface */ }; }; </pre>

```

node:
{
  name="node1";
  ip_address=["192.168.1.1","224.0.0.1"];          /* Comma-separated
multiple ip's are supported.

                               Specifying a multi-cast address is
useful for continuous synchronization with several nodes */
  cpu={mops=XXX; mbps=YYY; };
  scheduling={type=""; options=""; };

  dac=(
    {type="uhd"; address="usrp1"; options=""; }, // This indicates
node1 has physical access to a AD/DA converter. supported
types={"uhd","x5"}
                               // options string is passed as a
parameter to DAC.create() function. See particular DAC documentation

    { /* other dacs */ }
  );

  other_options:
  { rt_control="soft";          /* RT-Fault if first module ("soft") or last
module ("hard") still executing at begin of timeslot */
    rt_fault="kill";          /* Kill waveform ("kill") or just print
warning message ("print") */
    kernel_prio=60;          /* Kernel timer thread priority
(default=90) */
    proc_prio=59;          /* processor threads priority
(default=89) */

    /* The following three optional values control the amount of
memory that is preallocated at boot */
    max_waveforms=20;          /* (optional) maximum number of
waveform objects that can be used. Default=20 */
    max_modules_x_waveform=20; /* (optional) maximum
number of module objects per waveform that can be used. Default=20 */
    max_variables_x_module=20; /* (optional) maximum number
of variable objects per module that can be used. Default=20 */
    max_modules_x_node=20;     /* (optional) maximum number
of module objects per node that can be launched. Default=20 */
    max_queues_x_node=20;     /* (optional) maximum number
of queues per node that are created. Default=20 */
  };
};

node:
{          // node2 has IP address 192.168.1.2
  name="node2";
  ip_address=["192.168.1.2"];
  cpu={mops=XXX; mbps=YYY; };
  scheduling={type=""; options=""; };

```

```

other_options { rt_control="hard"; rt_fault="print";
}

synchronization:
{
    master="node1";
    source="timer";      /* Options: "timer" for local timer; "dac://
dac_name" to get clock from dac interrupts (master node needs access
to the dac) */


    continuous_mode=TRUE; /* Sends one packet at the beginning of
the timeslot, which drives the slave timeslot clock. */
                        /* If FALSE, slaves request synchronization packet
every "period" timeslots */
    period=100;          /* Synchronization period. Ignored if
continuous_mode=FALSE */
    multicast=TRUE;      /* If platform.manager.sync.proto="udp" and
continuous_mode=TRUE, using multicast has better performance. */
};

data_interfaces= (
    {src="node1"; dst="node2"; bw=10.0; duplex="half";      /* node1
has an output interface to node2. bw is the interface bandwidth in MBPS
*/

                                /* "nodeName:IPindex"
optionally indicates the IP index in ip_address (default=0)
    {/* more interfaces here */}
    );

```

 waveform_status

 waveform

Inherits from General.Waveform class. After the waveform is loaded to a platform, the class allows to send status change commands and update the local objects with the remote ALOE-Node waveform objects. A waveform must be parsed (parse()) prior to being loaded (load()).

Sample waveform configuration file:

```



=====





modules:
{

convcoder:
{
    binary="convcoder1.0.so";
    proc=XXX // in mopts

    outputs=(
        ( "output1", "decoder", "input1", 0.3), /* localIfName, remoteModuleName,
remoteIfName, BW requirements (in mbpts) */

```

	<pre> ("output2", "otherMod", "output2", 1)); variables=((name="code"; value=[0x79,0x10,0xf4;]), (name="blocksize"; value=100;)); }; decoder: { binary="decoder1.2.so"; proc=XXX // in mopts inputs=("input1", "convcoder", "output1"); /* Inputs do not specify BW. Must coincide with output interface */ outputs=("output1", "sink", "input1", 0.1); variables=((name="code"; value=[0x79,0x10,0xf4;]), (name="blocksize"; value=100;), (name="SNR"; value=3.2;)); }; decoder: { binary="decoder1.2.so"; proc=XXX // in mopts inputs=("input1", "decoder", "output1"); }; options: { max_delay_us=2000; /* This is currently not in use */ pre_mapping=(("decoder", "sink"), (/* another vector of joined modules */)); } </pre>
 module_interface	Data interface between modules.
 mapping	<p>This class runs the waveform-to-platform mapping algorithm and stores the result. The mapping procedure is as follows:</p> <ol style="list-style-type: none"> 1) Create an object instance 2) call to setup() to configure the mapping algorithm 3) call to map(platform,waveform) to map "waveform" object to "platform" object 4) +result is an array of nof_nodes waveforms, one for each waveform. 5) The processorId attribute of every module is filled during map() with the processor id in the node it has been mapped to


 man_node	A node is a collection of processors sharing memory. It may have data interfaces to other nodes. It implements Serializable interface and just copies all attributes
 variable	Inherits from General.ModVariable. Part of the CMDAPI. Adds functionality to set or obtain variable values from the distributed modules.
 module_execinfo	Inherits from General.ModExecInfo class. Part of the CMDAPI, adds functionality to retrieve module's ExecInfo attributes
 module	Inherits from General.Module class. Part of the CMDAPI, used to update module's variables or execinfo information


Details


man_platform_model


Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Author	ismael
Create Date Time	Oct 8, 2012 8:25:08 PM
Last Modified	Oct 9, 2012 10:25:18 AM


Attributes

public C : float			
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 9, 2012 10:25:18 AM		
Type Modifier	[processor_MAX]		
Type	 float		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public B : float			
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 9, 2012 10:25:18 AM		
Type Modifier	[processor_MAX]		
Type	 float		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public I : float			
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 9, 2012 10:25:18 AM		
Type Modifier	[processor_MAX][processor_MAX]		
Type	 float		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public C_rem : float			
Author	ismael		
Create Date Time	Oct 8, 2012 8:26:45 PM		
Last Modified	Oct 9, 2012 10:25:18 AM		
Type Modifier	[processor_MAX]		
Type	 float		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public B_rem : float			
Author	ismael		
Create Date Time	Oct 8, 2012 8:26:49 PM		
Last Modified	Oct 9, 2012 10:25:18 AM		
Type Modifier	[processor_MAX]		
Type	 float		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Relationships

Unnamed Association		
From	Name	Value
	End Model Element	 man_platform
	Author	ismael
	Create Date Time	Oct 8, 2012 8:26:17 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 8, 2012 8:26:17 PM	
Last Modified	Oct 9, 2012 10:25:18 AM	
Derived	false	

[manapi_errorcodes](#)

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Stereotypes	enumeration
Author	ismael
Create Date Time	Oct 7, 2012 9:30:27 PM
Last Modified	Oct 9, 2012 10:25:18 AM

Attributes

public EINVALID			
Stereotypes	Constant		
Author	ismael		
Create Date Time	Oct 7, 2012 9:31:13 PM		
Last Modified	Oct 8, 2012 10:50:35 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public ENOEXISTS			
Stereotypes	Constant		
Author	ismael		
Create Date Time	Oct 7, 2012 9:31:16 PM		
Last Modified	Oct 8, 2012 10:50:35 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public ENOSPACE			
Stereotypes	Constant		
Author	ismael		
Create Date Time	Oct 7, 2012 9:31:20 PM		
Last Modified	Oct 8, 2012 10:50:35 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public E2BIG			
Stereotypes	Constant		
Author	ismael		
Create Date Time	Oct 7, 2012 9:31:48 PM		
Last Modified	Oct 8, 2012 10:50:35 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public EOTHER			
Stereotypes	Constant		
Author	ismael		
Create Date Time	Oct 7, 2012 9:31:53 PM		
Last Modified	Oct 8, 2012 10:50:35 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

manapi



Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	<p>The front-end to the CmdAPI Interface. Does not add any extra functionality except for facilitating the platform management.</p> <p>On initialize(), creates a CmdPlatform object and nof_waveforms CmdWaveform objects. Those classes implement the platform management. The CmdFrontEnd just implements some functions to get the CmdWaveform object from the array.</p> <p>Typically, an object of this class is invoked by a thread running in the manager node (any node in the platform) with non-rt priority. This thread is in charge of parsing stdin user commands and calling the appropriate methods for each class. This class may also be used from a GUI, for instance.</p>
Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 9, 2012 1:01:12 PM

Attributes


private initialized : boolean


Documentation	Indicates if the manager api has been initiated. If already initiated, a call to initialize() will fail.		
Author	ismael		
Create Date Time	Oct 8, 2012 1:25:37 PM		
Last Modified	Oct 8, 2012 1:32:14 PM		
Type	 boolean		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Operations

public initialize (platform_conf : string, waveforms_repository : string)		
Parameters	platform_conf	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 11:53:28 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 string
	Direction	inout
	Dotnet Code Detail	N/A
	waveforms_repository	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 11:53:28 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 string
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Creates the CmdPlatform object from the platformConfPath configuration file. call read_waveforms	
Author	ismael	
Create Date Time	Sep 14, 2012 11:52:22 AM	
Last Modified	Oct 9, 2012 1:01:12 PM	

Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public waveform_get (name : string) : waveform		
Parameters	name	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 11:54:18 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 string
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	returns the CmdWaveform object associated to the waveform "name"	
Author	ismael	
Create Date Time	Sep 14, 2012 11:53:47 AM	
Last Modified	Oct 9, 2012 11:08:36 AM	
Type Modifier	*	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


public read_waveforms (repository : string)		
Parameters	repository	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 8, 2012 5:52:51 PM
	Last Modified	Oct 8, 2012 5:53:01 PM
	Type	 string
	Direction	inout
Static	false	
Leaf	false	
Documentation	Reads the repository directory and creates initializes the waveform instances objects, one for each waveform model file in the directory (.app extension).	
Author	ismael	
Create Date Time	Sep 14, 2012 11:53:30 AM	


Last Modified	Oct 9, 2012 1:01:12 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


public start_nodes ()	
Static	false
Leaf	false
Documentation	rsh runcf on all nodes
Author	ismael
Create Date Time	Sep 26, 2012 12:22:59 PM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public stop_nodes ()	
Static	false
Leaf	false
Documentation	rsh killcf on all nodes
Author	ismael
Create Date Time	Sep 26, 2012 12:23:04 PM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

Relationships

Unnamed Association		
To (error)	Name	Value
	End Model Element	 manapi_error
	Author	ismael
	Create Date Time	Oct 7, 2012 9:30:59 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	private
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 7, 2012 9:30:59 PM	
Last Modified	Oct 9, 2012 10:25:18 AM	
Derived	false	

Unnamed Association		
To (waveformsArray)	Name	Value
	End Model Element	 waveform
	Author	ismael
	Create Date Time	Sep 12, 2012 1:50:47 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	waveforms_MAX
	Visibility	private
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Sep 12, 2012 1:50:47 AM	
Last Modified	Oct 8, 2012 8:51:57 PM	
Derived	false	

Unnamed Association		
To (platform)	Name	Value
	End Model Element	 man_platform
	Author	ismael
	Create Date Time	Oct 8, 2012 8:21:41 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	private
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 8, 2012 8:21:41 PM	
Last Modified	Oct 9, 2012 10:25:18 AM	
Derived	false	

waveform_status_enum

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Stereotypes	enumeration
Author	ismael
Create Date Time	Oct 9, 2012 10:00:37 AM
Last Modified	Oct 9, 2012 11:29:23 AM

Attributes

public PARSED			
Author	ismael		
Create Date Time	Oct 9, 2012 11:18:04 AM		
Last Modified	Oct 9, 2012 11:29:23 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public LOADED			
Author	ismael		
Create Date Time	Oct 9, 2012 10:00:52 AM		
Last Modified	Oct 9, 2012 10:25:18 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public INIT			
Author	ismael		
Create Date Time	Oct 9, 2012 10:00:55 AM		
Last Modified	Oct 9, 2012 10:25:18 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public RUN			
Author	ismael		
Create Date Time	Oct 9, 2012 10:00:59 AM		
Last Modified	Oct 9, 2012 10:25:18 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public PAUSE			
Author	ismael		
Create Date Time	Oct 9, 2012 10:01:01 AM		
Last Modified	Oct 9, 2012 10:25:18 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public STOP			
Author	ismael		
Create Date Time	Oct 9, 2012 10:01:02 AM		
Last Modified	Oct 9, 2012 10:25:18 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


Relationships

Unnamed Association		
From	Name	Value
	End Model Element	 waveform_status
	Author	ismael
	Create Date Time	Oct 9, 2012 10:01:34 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 9, 2012 10:01:34 AM	
Last Modified	Oct 9, 2012 10:25:18 AM	
Derived	false	

manapi_error

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Author	ismael
Create Date Time	Oct 7, 2012 9:29:55 PM
Last Modified	Oct 9, 2012 10:25:18 AM

Attributes


package code : manapi_errorcodes			
Author	ismael		
Create Date Time	Oct 7, 2012 9:30:43 PM		
Last Modified	Oct 8, 2012 12:51:34 PM		
Type	 manapi_errorcodes		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Operations

public code () : manapi_errorcodes	
Static	false
Leaf	false
Author	ismael
Create Date Time	Oct 7, 2012 9:30:33 PM
Last Modified	Oct 8, 2012 12:51:34 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public string () : char	
Static	false
Leaf	false
Author	ismael
Create Date Time	Oct 7, 2012 9:30:36 PM
Last Modified	Oct 8, 2012 12:33:16 AM
Type Modifier	*
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

Relationships

Unnamed Association		
From	Name	Value
	End Model Element	 manapi
	Author	ismael
	Create Date Time	Oct 7, 2012 9:30:59 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 7, 2012 9:30:59 PM	
Last Modified	Oct 9, 2012 10:25:18 AM	
Derived	false	

man_platform

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	The CmdPlatform class manages the hardware parts of the platform. This config() function does not follow the platform-independence rules and is platform-dependant, because it reads the platform configuration file, which is particularized for a given platform (in this case, linux platform). The rest of the functions are platform-independent.

Sample platform configuration file format (libconfig format, see <http://www.hyperrealm.com/libconfig/test.cfg.txt>):

```
=====

platform:
{
    timeslot=100;           // in microseconds. The time-slot is
                             unique for the platform.

    /* other platform-wide options */
    mapping:
    {
        algorithm="tw";
        options="";
    };

    manager:
    {
        ip_address="192.168.1.1"; // IP address of the host where
the manager will be executed
        clock_local=TRUE;        // If it runs in a node, it can obtain
the timing using shared memory IPC. If set to false, it will obtain
timing from synchronization.master
    };

    network:
    {
        ctrl={port=7000; proto="tcp";} // The manager connects
to each node using this port
        probe={port=7001; proto="udp";} // The manager
connects to each node using this port
        sync={port=7002; proto="udp";} // Each node creates a
listening socket on this range of ports
        data={ports=[7003,7010]: proto="udp";} /* These are the
ports used for data interfaces. Each port is used to open a
socket for every module-to-module link.

        In this example, each physical
interface creates 7 ports, therefore up to logical links between
modules can be used

        in this physical interface */
    };
};

node:
{
    name="node1";
    ip_address=["192.168.1.1","224.0.0.1"]; // Comma-
separated multiple ip's are supported.
```

```

                                                                    Specifying a multi-cast
address is useful for continuous synchronization with several
nodes */
cpu={mops=XXX; mbps=YYY; };
scheduling={type=""; options=""; };

dac=(
    {type="uhd"; address="usrp1"; options=""; }, // This
indicates node1 has physical access to a AD/DA converter.
supported types={"uhd","x5"}
                                                                    // options string is passed
as a parameter to DAC.create() function. See particular DAC
documentation
    { /* other dacs */ }
);

other_options:
    { rt_control="soft";          /* RT-Fault if first module
("soft") or last module ("hard") still executing at begin of timeslot
*/
        rt_fault="kill";          /* Kill waveform ("kill") or just
print warning message ("print") */
        kernel_prio=60;           /* Kernel timer thread priority
(default=90) */
        proc_prio=59;             /* processor threads priority
(default=89) */

        /* The following three optional values control the amount
of memory that is preallocated at boot */
        max_waveforms=20;         /* (optional) maximum
number of waveform objects that can be used. Default=20 */
        max_modules_x_waveform=20; /* (optional)
maximum number of module objects per waveform that can be
used. Default=20 */
        max_variables_x_module=20; /* (optional) maximum
number of variable objects per module that can be used.
Default=20 */
        max_modules_x_node=20;    /* (optional) maximum
number of module objects per node that can be launched.
Default=20 */
        max_queues_x_node=20;     /* (optional) maximum
number of queues per node that are created. Default=20 */
    };
};

node:
{
    // node2 has IP address 192.168.1.2
    name="node2";
    ip_address=["192.168.1.2"];
    cpu={mops=XXX; mbps=YYY; };
    scheduling={type=""; options=""; };

```

```

other_options { rt_control="hard"; rt_fault="print";
}

synchronization:
{
    master="node1";
    source="timer";      /* Options: "timer" for local timer;
"dac://dac_name" to get clock from dac interrupts (master node
needs access to the dac) */

    continuous_mode=TRUE; /* Sends one packet at the
beginning of the timeslot, which drives the slave timeslot clock.
*/

                        /* If FALSE, slaves request synchronization
packet every "period" timeslots */
    period=100;          /* Synchronization period. Ignored if
continuous_mode=FALSE */
    multicast=TRUE;      /* If
platform.manager.sync.proto="udp" and
continuous_mode=TRUE, using multicast has better
performance. */
};

data_interfaces= (
    {src="node1"; dst="node2"; bw=10.0; duplex="half";      /
* node1 has an output interface to node2. bw is the interface
bandwidth in MBPS */


                                /* "nodeName:IPindex"
optionally indicates the IP index in ip_address (default=0)
    {/* more interfaces here */}
    );

```

=====


Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 9, 2012 12:40:54 PM

Attributes

package last_update_ts : int			
Author	ismael		
Create Date Time	Sep 14, 2012 1:08:42 PM		
Last Modified	Oct 8, 2012 8:29:02 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package ts_length_us : int			
Documentation	Time-slot duration, in microseconds		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 8:29:02 PM		
Type	int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package sync_itf : hwapi_physicif			
Author	ismael		
Create Date Time	Oct 9, 2012 11:29:35 AM		
Last Modified	Oct 9, 2012 11:30:33 AM		
Type Modifier	*		
Type	hwapi_physicif		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package sync_local : boolean			
Author	ismael		
Create Date Time	Oct 9, 2012 11:30:43 AM		
Last Modified	Oct 9, 2012 11:31:29 AM		
Initial Value	false		
Type	 boolean		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Operations

public update ()	
Static	false
Leaf	false
Documentation	For each node, send a HWINFO command. Save the contents of the received packet into node.hwinfo structure
Author	ismael
Create Date Time	Sep 14, 2012 1:08:35 PM
Last Modified	Oct 8, 2012 8:29:02 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A

Query	false
-------	-------

public connect ()	
Static	false
Leaf	false
Documentation	1) For each node, call node[i].ctrltlf.connect() and node[i].probeltf.connect() 3) If syncLocal==false, synccltf.connect() 4) For each node, send Cmd.CONNECT command
Author	ismael
Create Date Time	Sep 26, 2012 10:34:31 AM
Last Modified	Oct 8, 2012 8:29:02 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public disconnect ()	
Static	false
Leaf	false
Documentation	1) For each node, send Cmd.DISCONNECT command 2) For each node, call node.ctrltlf.close(), node.probeltf.close() 3) call synccltf.close()
Author	ismael
Create Date Time	Sep 26, 2012 10:38:38 AM
Last Modified	Oct 8, 2012 8:29:02 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public tslot_length () : int	
Static	false
Leaf	false
Author	ismael
Create Date Time	Oct 8, 2012 6:21:40 PM
Last Modified	Oct 8, 2012 8:29:02 PM
Ordered	false
Unique	true
Query	false



public model () : man_platform_model	
Static	false
Leaf	false
Author	ismael
Create Date Time	Oct 8, 2012 8:25:45 PM
Last Modified	Oct 9, 2012 11:08:36 AM
Type Modifier	*
Ordered	false
Unique	true
Query	false


package config (config_file : string)		
Parameters	config_file	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 12, 2012 1:50:47 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	string
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	<p>Initializes the HWAPI and reads and parses the platform configuration file with path "configFile". It must be called before calling any other function.</p> <ol style="list-style-type: none"> 1) Parse "configFile" 2) Call hwapi_create_manager_itfs(configFile) 3) Configure clock: <ol style="list-style-type: none"> 3.1) If clockLocal==TRUE, call hwapi_attach_local_time() and set sync_local=TRUE 3.2) Otherwise, set sync_itf=hwapi_physicif_get("sync"); and set sync_local=FALSE 4) For each node <ol style="list-style-type: none"> 4.1) Configure node, processor and interfaces instances 4.2) set node[i].ctrl_itf=hwapi_itfphysic_get("ctrl_nodename") where nodename is the node name 4.3) set node[i].probe_itf=hwapi_itfphysic_get("probe_nodename") where nodename is the node name 4.4) Add asyncError to all probe interfaces listeners. Node.probeListener.addCallback(process_probe_pkt) 5) Create C, B, I platform model from the nodes and data interfaces specified in the configuration file 	


	The function must check that the configuration file parameters are correct, issuing warnings when necessary
Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 9, 2012 11:31:29 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

package sync ()	
Static	false
Leaf	false
Author	ismael
Create Date Time	Sep 18, 2012 10:15:45 AM
Last Modified	Oct 8, 2012 8:29:02 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false



package send_cmd (dest : packet_dest, cmd : packet_command, object : serializable) : packet

Parameters	dest	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 12, 2012 1:50:47 AM
	Last Modified	Oct 9, 2012 11:17:52 AM
	Type	 packet_dest
	Direction	inout
	Dotnet Code Detail	N/A
	cmd	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 9, 2012 11:11:50 AM
	Last Modified	Oct 9, 2012 11:17:52 AM
	Type	packet_command
	Direction	inout
	object	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 13, 2012 11:10:34 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 serializable
	Direction	out
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Sends Command to Node destination attaching the sendObj serializable object. Calls serialize(sendObj) function to serialize object data to the packet.	
Author	ismael	
Create Date Time	Sep 12, 2012 1:50:47 AM	
Last Modified	Oct 9, 2012 12:40:54 PM	
Type Modifier	*	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


package node_id (node_id : int) : man_node		
Parameters	node_id	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 9, 2012 11:16:34 AM
	Last Modified	Oct 9, 2012 11:17:52 AM
	Type	 int
	Direction	inout
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Oct 9, 2012 11:16:06 AM	
Last Modified	Oct 9, 2012 11:17:52 AM	
Type Modifier	*	
Ordered	false	
Unique	true	
Query	false	


package node_pidx (processor_idx : int) : man_node		
Parameters	processor_idx	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 9, 2012 11:03:43 AM
	Last Modified	Oct 9, 2012 11:08:36 AM
	Type	 int
	Direction	inout
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Oct 9, 2012 11:03:18 AM	
Last Modified	Oct 9, 2012 11:17:52 AM	
Type Modifier	*	
Ordered	false	
Unique	true	
Query	false	

private process_probe_pkt (data : void, size : int)

Parameters	data	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 4, 2012 9:32:45 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	 void
	Direction	inout
	Dotnet Code Detail	N/A
	size	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 4, 2012 10:19:03 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	<p>Processes asynchronous execution error messages from nodes. The format of the asyncError packet is as follows:</p> <p>1st 32-bit word: Waveform id 2st 32-bit word: Module id 3st 32-bit word: Error code Next: errorMsg string</p> <p>@mayChange: For any error message!=OK, set STOP status to the waveform that caused it and print message to SDTDOUT.</p>	
Author	ismael	
Create Date Time	Oct 4, 2012 9:31:39 AM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

Relationships


Unnamed Association		
To (model)	Name	Value
	End Model Element	 man_platform_model
	Author	ismael
	Create Date Time	Oct 8, 2012 8:26:17 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	package
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 8, 2012 8:26:17 PM	
Last Modified	Oct 9, 2012 10:25:18 AM	
Derived	false	


Unnamed Association		
From	Name	Value
	End Model Element	 manapi
	Author	ismael
	Create Date Time	Oct 8, 2012 8:21:41 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 8, 2012 8:21:41 PM	
Last Modified	Oct 9, 2012 10:25:18 AM	
Derived	false	

waveform_status

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Author	ismael
Create Date Time	Sep 21, 2012 12:22:45 AM
Last Modified	Oct 9, 2012 12:07:31 PM




Attributes

public next_timeslot : int			
Author	ismael		
Create Date Time	Sep 24, 2012 12:20:19 PM		
Last Modified	Oct 8, 2012 8:51:57 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public dead_timeslot : int			
Documentation	Indicates the deadline timeslot to check if the status has been changed correctly.		
Author	ismael		
Create Date Time	Oct 2, 2012 11:57:19 AM		
Last Modified	Oct 8, 2012 8:51:57 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Operations

public toString () : int	
Static	false
Leaf	false
Author	ismael
Create Date Time	Sep 14, 2012 11:37:40 AM
Last Modified	Oct 9, 2012 10:25:18 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


public set (new : waveform_status_enum, next_ts : int, dead_ts : int)		
Parameters	new	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:19:33 PM
	Last Modified	Oct 9, 2012 10:25:18 AM
	Type	 waveform_status_enum
	Direction	inout
	Dotnet Code Detail	N/A
	next_ts	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 9, 2012 10:03:29 AM
	Last Modified	Oct 9, 2012 10:25:18 AM
	Type	 int
	Direction	inout
	dead_ts	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 9, 2012 10:03:29 AM
	Last Modified	Oct 9, 2012 10:25:18 AM
	Type	 int
	Direction	inout
Static	false	
Leaf	false	
Documentation	<p>Modifies the waveform execution status. The status is first modified locally and, if the transition is valid, a command to the ALOE-Nodes is issued:</p> <ol style="list-style-type: none"> 1) Verify isLoaded() 	


	2) Check if the status transition is valid. 3) Iterate through the waveform.mapping.node array and send command Cmd.SET to dest(waveform.Id,0,0) and serialize(waveform.Status) 4) wait for reception positive ACK 5) If nextStatus=Status.INIT call waveform.update()
Author	ismael
Create Date Time	Sep 14, 2012 1:19:15 PM
Last Modified	Oct 9, 2012 10:25:18 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public isLoaded () : boolean	
Static	false
Leaf	false
Documentation	returns true if the Status is LOADED, INIT, RUN or PAUSE
Author	ismael
Create Date Time	Sep 18, 2012 2:05:00 PM
Last Modified	Oct 9, 2012 10:25:18 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public isRunning () : boolean	
Static	false
Leaf	false
Documentation	returns true if the waveform is in status RUN or PAUSE
Author	ismael
Create Date Time	Sep 18, 2012 2:24:23 PM
Last Modified	Oct 9, 2012 10:25:18 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

Relationships

Unnamed Association		
To (cur_status)	Name	Value
	End Model Element	 waveform_status_enum
	Author	ismael
	Create Date Time	Oct 9, 2012 10:01:34 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	public
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 9, 2012 10:01:34 AM	
Last Modified	Oct 9, 2012 10:25:18 AM	
Derived	false	

Unnamed Association		
From (waveform*)	Name	Value
	End Model Element	 waveform
	Author	ismael
	Create Date Time	Oct 9, 2012 9:58:40 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	public
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 9, 2012 9:58:40 AM	
Last Modified	Oct 9, 2012 10:25:18 AM	
Derived	false	

waveform

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	<p>Inherits from General.Waveform class. After the waveform is loaded to a platform, the class allows to send status change commands and update the local objects with the remote ALOE-Node waveform objects. A waveform must be parsed (parse()) prior to being loaded (load()).</p> <p>Sample waveform configuration file:</p> <p>=====</p>


	<pre> modules: { convcoder: { binary="convcoder1.0.so"; proc=XXX // in mopts outputs=(("output1", "decoder", "input1", 0.3), /* localltfName, remoteModuleName, remoteltfName, BW requirements (in mbpts) */ ("output2", "otherMod", "output2", 1)); variables=((name="code"; value=[0x79,0x10,0xf4]);, (name="blocksize"; value=100;)); }; decoder: { binary="decoder1.2.so"; proc=XXX // in mopts inputs=("input1", "convcoder", "output1"); /* Inputs do not specify BW. Must coincide with output interface */ outputs=("output1", "sink", "input1", 0.1); variables=((name="code"; value=[0x79,0x10,0xf4]);, (name="blocksize"; value=100;), (name="SNR"; value=3.2;)); }; decoder: { binary="decoder1.2.so"; proc=XXX // in mopts inputs=("input1", "decoder", "output1"); }; options: { max_delay_us=2000; /* This is currently not in use */ pre_mapping=(("decoder", "sink"), (/* another vector of joined modules */)); } </pre>
Author	ismael

Create Date Time	Sep 14, 2012 1:12:35 AM
Last Modified	Oct 9, 2012 1:01:12 PM

Attributes


public id : int			
Documentation	Automatically generated waveform id. Must be unique in the platform.		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public name : string			
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public last_update_ts : int	
Documentation	Timeslot of the last update
Author	ismael
Create Date Time	Sep 14, 2012 11:56:39 AM
Last Modified	Oct 8, 2012 11:53:19 PM
Type	 int


Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	1		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public status_timestamp_delay : int			
Documentation	Number of timeslots to delay an status change. Should be larger than the maximum delay (in timeslots) to any Node		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public c : float			
Documentation	vector of computing requirements, in mopts		
Author	ismael		
Create Date Time	Sep 18, 2012 12:47:32 PM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type Modifier	[]		
Type	 float		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		


Leaf	false
------	-------

public b : float			
Documentation	matrix of bandwidth requirements, in mbpts		
Author	ismael		
Create Date Time	Sep 18, 2012 12:48:11 PM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type Modifier	[]		
Type	 float		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public nof_modules : int			
Author	ismael		
Create Date Time	Oct 9, 2012 12:18:04 PM		
Last Modified	Oct 9, 2012 12:20:53 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public mapped_nodes_id : int			
Author	ismael		
Create Date Time	Oct 9, 2012 12:34:19 PM		
Last Modified	Oct 9, 2012 12:40:54 PM		
Type Modifier	[nodes_MAX]		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public model_file : string			
Author	ismael		
Create Date Time	Oct 9, 2012 12:56:26 PM		
Last Modified	Oct 9, 2012 1:01:12 PM		
Type	 string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

private mapping : mapping			
Documentation	Static temporal variable to do the mapping. After the mapping is done and modules assigned. Each module stores a pointer to the loaded node and keeps the processor index		
Author	ismael		
Create Date Time	Oct 9, 2012 10:51:11 AM		
Last Modified	Oct 9, 2012 11:08:36 AM		
Type	 mapping		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		


Derived Union	false
Read Only	false
Leaf	false

private transferring_node_id : int			
Author	ismael		
Create Date Time	Oct 9, 2012 11:14:23 AM		
Last Modified	Oct 9, 2012 12:40:54 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


Operations

public load ()	
Static	false
Leaf	false
Documentation	<p>Uses the platform object to load the waveform into the platform. The procedure is:</p> <ol style="list-style-type: none"> 1) Verify isParsed is true 2) Use the private mapping instance calling mapping_map(&mapping,self) 3) If the mapping is feasible, <ol style="list-style-type: none"> 3.1) For each module set module[i].processor_idx=mapping.p_res[i] and module.node=man_platform_node_pidx(p_res[i]); 4) For each node_id <ol style="list-style-type: none"> 4.1) set mapped_nodes[i]=node_id 4.2) set transferring_node_id=node_id 4.3) serialize waveform to man_platform_node_id(node_id), command=LOAD 6) Set the waveform status to LOADED
Author	ismael
Create Date Time	Sep 14, 2012 11:10:43 AM
Last Modified	Oct 9, 2012 12:40:54 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false



public update ()	
Static	false
Leaf	false
Documentation	<p>updates the module's objects with the distributed modules in the platform.</p> <ol style="list-style-type: none"> 1) Verify Status.isLoaded() 2) Iterate through the mapped_nodes_id array <ol style="list-style-type: none"> 2.1) set transferring_node_id=node_id 2.2) send command Cmd.GET to the man_platform_node_id(mapped_nodes_id[i]) with dest(waveform.Id,0,0) 2.3) unserializeTo the received packet to the local waveform object 4) set lastUpdateTS to current timeslot
Author	ismael
Create Date Time	Sep 14, 2012 11:10:54 AM
Last Modified	Oct 9, 2012 12:40:54 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public parse (name : string)		
Parameters	name	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 18, 2012 1:37:29 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 string
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	<p>Parses the waveform configuration file according to its format (specified in this class documentation). This method has to do:</p> <ol style="list-style-type: none"> 1) generate the (c,b) waveform model 2) create a Module instance for each module and add to modules array 3) create a Variable instance for each variable and add to modules[i].variables array 4) set Status=STOP <p>*NOTE*: Use libconfig file format and library for parsing</p>	
Author	ismael	
Create Date Time	Sep 12, 2012 1:50:47 AM	


Last Modified	Oct 9, 2012 1:01:12 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


package serialize (pkt : packet)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 13, 2012 10:30:12 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	- Serializes waveform attributes and call module.serialize() for all modules such that module->node.id=loading_node_id	
Author	ismael	
Create Date Time	Sep 13, 2012 10:29:07 PM	
Last Modified	Oct 9, 2012 11:29:23 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


package unserializeTo (pkt : packet, dest : serializable)

Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
	dest	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 serializable
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Save waveform status. Check that each node has the same waveform status. First word is the module id. For each module, find module id and call unserializeTo(pkt,module).	
Author	ismael	
Create Date Time	Sep 14, 2012 1:49:55 PM	
Last Modified	Oct 9, 2012 12:42:53 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

Relationships

Unnamed Association		
To (modules)	Name	Value
	End Model Element	 module
	Author	ismael
	Create Date Time	Oct 9, 2012 9:42:32 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	modules_MAX
	Visibility	public
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 9, 2012 9:42:32 AM	
Last Modified	Oct 9, 2012 9:52:06 AM	
Derived	false	

Unnamed Association		
To (status)	Name	Value
	End Model Element	 waveform_status
	Author	ismael
	Create Date Time	Oct 9, 2012 9:58:40 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	public
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 9, 2012 9:58:40 AM	
Last Modified	Oct 9, 2012 10:25:18 AM	
Derived	false	

Unnamed Association		
From	Name	Value
	End Model Element	 manapi
	Author	ismael
	Create Date Time	Sep 12, 2012 1:50:47 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	private
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Sep 12, 2012 1:50:47 AM	
Last Modified	Oct 8, 2012 8:51:57 PM	
Derived	false	

module_interface


Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	Data interface between modules.
Author	ismael
Create Date Time	Sep 17, 2012 8:38:51 PM
Last Modified	Oct 9, 2012 12:07:31 PM

Attributes


public id : int


Documentation	Unique id in the waveform		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 5:49:12 PM		
Type	int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public bw_total_mbpts : float			
Documentation	interface bandwidth requirements in MBPTS		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 5:49:12 PM		
Type	float		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public bw_use_mbpts : float			
Documentation	Used bandwidth (in MBPTS). *NOTE*: Unlike module's ExecInfo, the interfaces are assumed to use constant bandwidth.		
Author	ismael		
Create Date Time	Sep 16, 2012 11:29:11 PM		
Last Modified	Oct 8, 2012 5:49:12 PM		
Type	 float		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		


Multiplicity	Unspecified
Dotnet Code Detail	N/A
Aggregation	None
Derived Union	false
Read Only	false
Leaf	false


public name : string			
Documentation	Name of the interface		
Author	ismael		
Create Date Time	Sep 17, 2012 8:38:59 PM		
Last Modified	Oct 8, 2012 5:49:12 PM		
Type	 string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public remotelfName : string			
Author	ismael		
Create Date Time	Oct 2, 2012 12:07:15 PM		
Last Modified	Oct 8, 2012 5:49:12 PM		
Type	 string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public remoteObjName : string			
Author	ismael		
Create Date Time	Oct 2, 2012 12:07:24 PM		
Last Modified	Oct 8, 2012 5:49:12 PM		
Type	 string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public remoteltfld : int			
Author	ismael		
Create Date Time	Oct 2, 2012 12:08:48 PM		
Last Modified	Oct 8, 2012 5:49:12 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public remoteObjId : int			
Author	ismael		
Create Date Time	Oct 2, 2012 12:08:52 PM		
Last Modified	Oct 8, 2012 5:49:12 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public phyltId : int			
Author	ismael		
Create Date Time	Oct 2, 2012 12:09:12 PM		
Last Modified	Oct 8, 2012 5:49:12 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public delay : int			
Documentation	Interface delay, in timeslots		
Author	ismael		
Create Date Time	Oct 2, 2012 12:51:38 PM		
Last Modified	Oct 8, 2012 5:49:12 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		



Derived Union	false
Read Only	false
Leaf	false

public active : boolean			
Author	ismael		
Create Date Time	Oct 2, 2012 1:08:09 PM		
Last Modified	Oct 8, 2012 5:49:12 PM		
Type	 boolean		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


Operations

package serialize (pkt : packet)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 13, 2012 11:03:03 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Copy all attributes	
Author	ismael	
Create Date Time	Sep 13, 2012 10:30:12 PM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

package unserializeTo (pkt : packet, dest : serializable)

Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
	dest	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 serializable
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Copy all attributes	
Author	ismael	
Create Date Time	Sep 14, 2012 1:49:55 PM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

Relationships

Unnamed Association		
From	Name	Value
	End Model Element	 module
	Author	ismael
	Create Date Time	Oct 9, 2012 10:06:06 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 9, 2012 10:06:06 AM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	


mapping


Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	<p>This class runs the waveform-to-platform mapping algorithm and stores the result. The mapping procedure is as follows:</p> <ol style="list-style-type: none"> 1) Create an object instance 2) call to setup() to configure the mapping algorithm 3) call to map(platform,waveform) to map "waveform" object to "platform" object


	4) +result is an array of nof_nodes waveforms, one for each waveform. 5) The processorId attribute of every module is filled during map() with the processor id in the node it has been mapped to
Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 9, 2012 11:00:52 AM

Attributes


public cost : float			
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 9, 2012 9:36:13 AM		
Type	float		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public p_res : int			
Documentation	Position i of the vector gives the processor index the i-th module has been mapped to		
Author	ismael		
Create Date Time	Oct 9, 2012 10:11:41 AM		
Last Modified	Oct 9, 2012 11:00:52 AM		
Type Modifier	[modules_MAX]		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public algorithm : int			
Author	ismael		
Create Date Time	Oct 9, 2012 10:57:33 AM		
Last Modified	Oct 9, 2012 11:00:52 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public options : int			
Author	ismael		
Create Date Time	Oct 9, 2012 10:57:36 AM		
Last Modified	Oct 9, 2012 11:00:52 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Operations


package map (waveform : nod waveform)		
Parameters	waveform	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 12, 2012 1:50:47 AM
	Last Modified	Oct 8, 2012 11:30:37 AM
	Type	 nod_waveform
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	1) Configure the mapping algorithm 2) generate the c,b waveform model	


	3) call the mapping algorithm with the man_platform_model() and waveform modules 4) for each module, assign its node. 5) for all modules's interfaces, assign physical interfaces id (if communication is external) 6) construct the result[] array of waveform objects
Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 9, 2012 10:42:32 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

man_node

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	A node is a collection of processors sharing memory. It may have data interfaces to other nodes. It implements Serializable interface and just copies all attributes
Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 9, 2012 12:07:31 PM


Attributes

package ctr_itf : hwapi_itfphysic			
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 9, 2012 11:29:23 AM		
Type Modifier	*		
Type	 hwapi_itfphysic		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


package probe_itf : hwapi_itfphysic			
Author	ismael		
Create Date Time	Oct 9, 2012 11:21:32 AM		
Last Modified	Oct 9, 2012 11:29:23 AM		
Type Modifier	*		
Type	 hwapi_itfphysic		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package name : string			
Documentation	Name of the node, as specified in platform.conf in CmdPlatform class		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 8:29:02 PM		
Type	string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		

Multiplicity	Unspecified
Dotnet Code Detail	N/A
Aggregation	None
Derived Union	false
Read Only	false
Leaf	false

package id : int			
Author	ismael		
Create Date Time	Oct 2, 2012 12:31:25 PM		
Last Modified	Oct 8, 2012 8:29:02 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


Relationships

Unnamed Association		
From	Name	Value
	End Model Element	 module
	Author	ismael
	Create Date Time	Oct 9, 2012 10:45:19 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 9, 2012 10:45:19 AM	
Last Modified	Oct 9, 2012 10:49:56 AM	
Derived	false	

variable

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	Inherits from General.ModVariable. Part of the CMDAPI. Adds functionality to set or obtain variable values from the distributed modules.
Author	ismael
Create Date Time	Sep 17, 2012 12:22:42 AM
Last Modified	Oct 9, 2012 12:07:31 PM

Attributes


public id : int			
Documentation	Unique id in the waveform		
Author	ismael		
Create Date Time	Sep 21, 2012 12:12:20 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public size : int			
Documentation	Size of the variable, in bytes		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public name : string	
Documentation	Name of the variable, as it is created by the module or defined in the .app. Note the module must create its variable with the same name as defined in the .app if wants to use the initialization value.
Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 8, 2012 11:53:19 PM
Type	string


Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public init_value : ALOEClasses.Utils.void			
Documentation	Pointer to the initialization value. In the constructor, a static buffer of variable.size bytes is allocated from the HWAPI memory pool (can use shm service) where the initialization value is stored. The value is unaltered until the destructor is called, when the memory is freed.		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type Modifier	*		
Type	ALOECclasses.Utils.void		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public window : int			
Documentation	Number of samples to capture from the variable during variable reporting. If the variable has len bytes, window*len bytes will be captured each period timeslots.		
Author	ismael		
Create Date Time	Sep 19, 2012 5:49:50 PM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		

Dotnet Code Detail	N/A
Aggregation	None
Derived Union	false
Read Only	false
Leaf	false

public period : int			
Documentation	Period, in timeslots, the variable value is reported.		
Author	ismael		
Create Date Time	Sep 19, 2012 5:49:55 PM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public periodCnt : int			
Author	ismael		
Create Date Time	Oct 3, 2012 1:01:30 PM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Initial Value	0		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public cur_value : void			
Author	ismael		
Create Date Time	Sep 19, 2012 8:54:25 PM		
Last Modified	Oct 9, 2012 9:52:06 AM		
Type Modifier	*		
Type	 void		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		



Operations

public update ()	
Static	false
Leaf	false
Documentation	<p>Gets the variable of the module running in an ALOE-node and saves the value to the buffer "value". Only min("size",variable.size) bytes will be updated.</p> <ol style="list-style-type: none"> 1) Verify module.waveform.Status=RUN 2) Send Cmd.GET dest(variable.module.waveform.Id, variable.module.Id, variable.Id) to variable.module.node using variable.module.waveform.cmdPlatform 3) wait for answer and serializeTo(variable) the packet 4) update lastUpdateTS with current ts
Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 8, 2012 11:10:36 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public value_set (value : ALOEClasses.Utils.void, size : int)


Parameters	value	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 12, 2012 1:50:47 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	ALOEClasses.Utils.void
	Direction	inout
	Dotnet Code Detail	N/A
	size	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 12, 2012 1:50:47 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	<p>Sets the variable of the module running in an ALOE-node to the value pointed by the buffer "value". Only min("size",variable.size) bytes will be updated.</p> <ol style="list-style-type: none"> 1) Verify module.waveform.Status=RUN 2) Copy min("size",variable.size) bytes from "value" to curValue 3) Send Cmd.SET dest(variable.module.waveform.Id, variable.module.Id, variable.Id) to variable.module.node using variable.module.waveform.cmdPlatform and serialize(variable) 4) wait for answer. 5) update lastUpdateTS with current ts 	
Author	ismael	
Create Date Time	Sep 12, 2012 1:50:47 AM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	



public report_start (callback : fncPtr, period : int, window : int)

Parameters	callback	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 18, 2012 11:14:49 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	fncPtr
	Direction	inout
	Dotnet Code Detail	N/A
	period	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 18, 2012 10:48:04 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
	window	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 18, 2012 10:48:04 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	<p>Begins a continuous report of a variable value with a given period and window. Each timeslot, the module produces a new variable value, which is received by the manager who calls the function pointed by "fncPtr".</p> <ol style="list-style-type: none"> 1) Verify module.waveform.Status.isRunning() 2) Use module.node.probeListener.addCallback(fncPtr, variable.Id) to setup a callback handler to the Probe physical interface. 3) save window and period attributes. Save size to temporal variable. Set size to 0. 4) Send Cmd.SET dest(variable.module.waveform.Id, variable.module.Id, variable.Id) to module.node using module.waveform.cmdPlatform and serialize(variable) 5) Restore size from temporal variable. 6) Waits for ACK. If OK quits otherwise removes the callback using module.node.probeListener.removeCallback(variable.Id) 	


Author	ismael
Create Date Time	Sep 18, 2012 10:47:48 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public report_stop ()	
Static	false
Leaf	false
Documentation	Stops reporting a variable. Sets window=period=0 and serializes de variable using SET command. The variable then not generate any other packet. This function then removes the callback from module.node.probeListener
Author	ismael
Create Date Time	Sep 18, 2012 10:48:18 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

package serialize (pkt : packet)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 13, 2012 11:03:03 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Serialize all attributes including value if size>0	
Author	ismael	
Create Date Time	Sep 13, 2012 10:30:12 PM	
Last Modified	Oct 8, 2012 11:20:37 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

package unserializeTo (pkt : packet, dest : serializable)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
	dest	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 serializable
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Save all attributes (including curValue if size>0) except initValue	
Author	ismael	
Create Date Time	Sep 14, 2012 1:49:55 PM	
Last Modified	Oct 8, 2012 11:20:37 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

Relationships

Unnamed Association		
From (module*)	Name	Value
	End Model Element	 module
	Author	ismael
	Create Date Time	Oct 9, 2012 9:43:24 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	public
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 9, 2012 9:43:24 AM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	

module_execinfo

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	Inherits from General.ModExecInfo class. Part of the CMDAPI, adds functionality to retrieve module's ExecInfo attributes
Author	ismael
Create Date Time	Sep 17, 2012 12:21:43 AM
Last Modified	Oct 9, 2012 12:07:31 PM

Attributes

public module_ts : int			
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public node_ts : int			
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public mean_exec_us : int			
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public max_exec_us : int			
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public mean_rel_us : int			
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public max_rel_us : int			
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public mean_mopts : float			
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	float		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public max_mopts : float			
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	float		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public t_exec : time_t			
Author	ismael		
Create Date Time	Oct 2, 2012 11:03:57 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type Modifier	[3]		
Type	time_t		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public last_update_ts : int			
Author	ismael		
Create Date Time	Sep 14, 2012 2:42:10 PM		
Last Modified	Oct 8, 2012 8:51:57 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		



Operations

public update ()	
Static	false
Leaf	false
Documentation	<p>Updates the local object's attributes with the node's attributes.</p> <ol style="list-style-type: none"> 1) Verify mmodule.waveform.Status.isLoaded() 2) Send Cmd.GET dest(module.waveform.Id, module.Id,0) to module.node using module.waveform.cmdPlatform 3) wait for answer and serializeTo(module.execInfo) 4) update lastUpdateTS with current ts
Author	ismael
Create Date Time	Sep 17, 2012 12:21:53 AM


Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

package serialize (pkt : packet)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 13, 2012 10:30:12 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Do nothing	
Author	ismael	
Create Date Time	Sep 13, 2012 10:29:07 PM	
Last Modified	Oct 8, 2012 11:20:37 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

package unserializeTo (pkt : packet, dest : serializable)

Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
	dest	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 serializable
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Save all attributes	
Author	ismael	
Create Date Time	Sep 14, 2012 1:49:55 PM	
Last Modified	Oct 8, 2012 11:20:37 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

Relationships


Unnamed Association		
From	Name	Value
	End Model Element	 module
	Author	ismael
	Create Date Time	Oct 9, 2012 9:44:08 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 9, 2012 9:44:08 AM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	

module

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	Inherits from General.Module class. Part of the CMDAPI, used to update module's variables or execinfo information
Author	ismael
Create Date Time	Sep 17, 2012 12:20:33 AM
Last Modified	Oct 9, 2012 12:42:53 PM

Attributes

public id : int			
Documentation	Unique number (in the waveform) generated automatically in the constructor.		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public last_update_ts : int			
Author	ismael		
Create Date Time	Sep 17, 2012 12:24:28 AM		
Last Modified	Oct 8, 2012 8:51:57 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public name : string			
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public binary : string			
Documentation	name of the binary, not the full path. Depending on the platform it can be a stand-alone executable (program) or a library which is dynamically loaded.		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public c_mopts : float			
Documentation	Module processing requirements in MOPTS		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	float		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		


Multiplicity	Unspecified
Dotnet Code Detail	N/A
Aggregation	None
Derived Union	false
Read Only	false
Leaf	false

public processor_idx : int			
Documentation	Processor id where the module has been mapped.		
Author	ismael		
Create Date Time	Sep 24, 2012 12:08:33 PM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public status : int			
Author	ismael		
Create Date Time	Oct 2, 2012 11:55:35 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public nof_reporting_vars : int			
Author	ismael		
Create Date Time	Oct 3, 2012 12:59:14 PM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public nof_variables : int			
Author	ismael		
Create Date Time	Oct 9, 2012 12:18:14 PM		
Last Modified	Oct 9, 2012 12:20:53 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public nof_interfaces : int			
Author	ismael		
Create Date Time	Oct 9, 2012 12:18:25 PM		
Last Modified	Oct 9, 2012 12:20:53 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		



Operations

public update ()	
Static	false
Leaf	false
Documentation	Updates the local object's attributes with the node's attributes. Retrieves also all the variables and execinfo 1) Verify waveform.Status.isLoaded() 2) Send Cmd.GET to dest(module.waveform.Id, module.Id,0) to module.node using module.waveform.cmdPlatform 3) wait for answer and serializeTo(module) 4) update lastUpdateTS with current ts
Author	ismael
Create Date Time	Sep 17, 2012 12:20:55 AM
Last Modified	Oct 8, 2012 11:20:37 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


public node () : man_node	
Static	false
Leaf	false
Author	ismael
Create Date Time	Oct 8, 2012 11:21:10 AM
Last Modified	Oct 8, 2012 1:01:34 PM
Ordered	false
Unique	true
Query	false


package serialize (pkt : packet)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 13, 2012 10:30:12 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Serialize module attributes and call interface.serialize() and variable.serialize() to all interfaces and variables	
Author	ismael	


Create Date Time	Sep 13, 2012 10:29:07 PM
Last Modified	Oct 8, 2012 11:20:37 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


package unserializeTo (pkt : packet, dest : serializable)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
	dest	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 serializable
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Call moduleObj.execInfo.unserializeTo(moduleObj.execInfo)	
Author	ismael	
Create Date Time	Sep 14, 2012 1:49:55 PM	
Last Modified	Oct 8, 2012 11:20:37 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


Relationships

Unnamed Association		
To (variables)	Name	Value
	End Model Element	 variable
	Author	ismael
	Create Date Time	Oct 9, 2012 9:43:24 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	variable_MAX
	Visibility	public
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 9, 2012 9:43:24 AM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	

Unnamed Association		
To (execinfo)	Name	Value
	End Model Element	 module_execinfo
	Author	ismael
	Create Date Time	Oct 9, 2012 9:44:08 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	public
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 9, 2012 9:44:08 AM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	

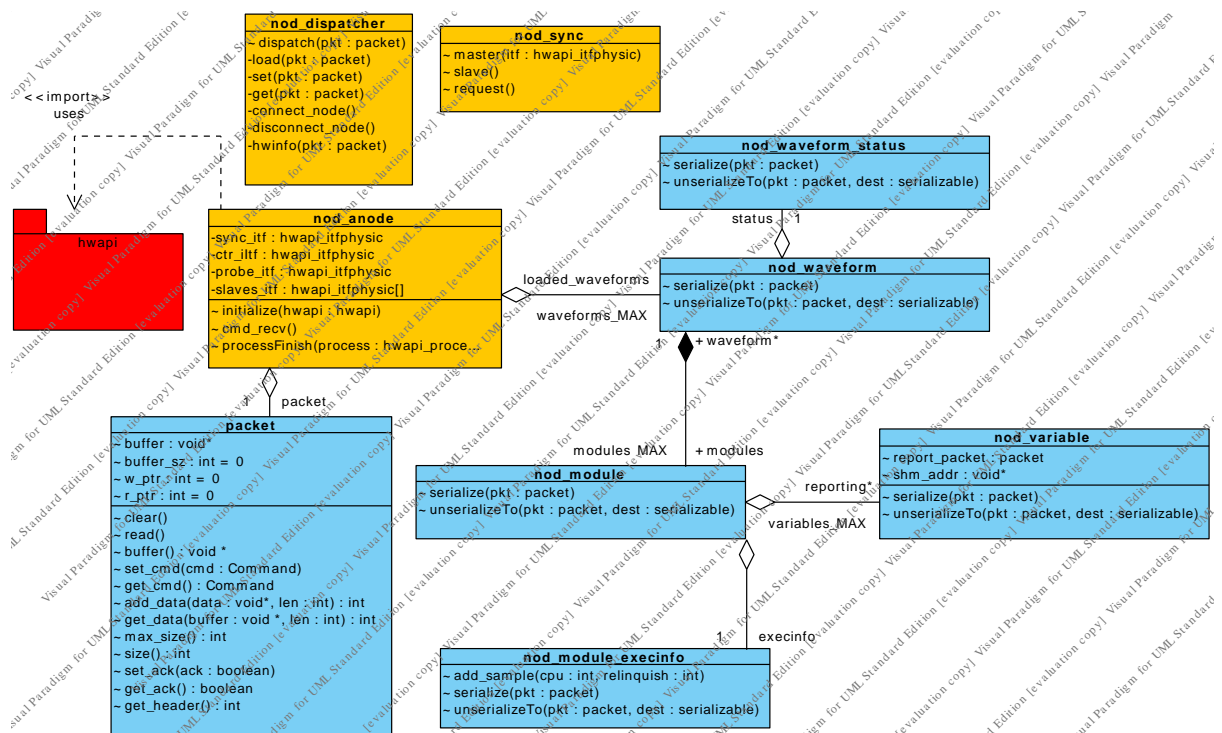
Unnamed Association		
To (interfaces)	Name	Value
	End Model Element	 module_interface
	Author	ismael
	Create Date Time	Oct 9, 2012 10:06:06 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	module_interface_MAX
	Visibility	public
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 9, 2012 10:06:06 AM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	

Unnamed Association		
To (node*)	Name	Value
	End Model Element	 man_node
	Author	ismael
	Create Date Time	Oct 9, 2012 10:45:19 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 9, 2012 10:45:19 AM	
Last Modified	Oct 9, 2012 10:49:56 AM	
Derived	false	

Unnamed Association		
From (waveform)	Name	Value
	End Model Element	 waveform
	Author	ismael
	Create Date Time	Oct 9, 2012 9:42:32 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	public
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 9, 2012 9:42:32 AM	
Last Modified	Oct 9, 2012 9:52:06 AM	
Derived	false	

Class Diagram




node



Name	Value
Name	node
Author	ismael
Create Date Time	Oct 5, 2012 3:28:13 PM
Last Modified	Oct 9, 2012 1:07:38 PM

Summary

Name	Documentation
nod_dispatcher	
nod_sync	
nod_waveform_status	
hwapi	
nod_anode	<p>This is the class that processes the commands coming from the ALOE-Manager.</p> <p>The HWAPI runs a background process and creates an object of this class. The HWAPI is responsible to periodically check for incoming messages from the control interface and call the process_cmd() function</p>
nod_waveform	<p>Used by the node to save the loaded waveforms, its modules and variables. At LOAD command, the class is received and serializeTo() a free Waveform object instance. Then waveform attributes, modules and variables and all their attributes are created on pre-allocated objects instances.</p>

 packet	<p>This class generates and reads the contents of a control packet, managing the specific header requirements (in the future, should support different kinds of endianness). The buffer is statically allocated at object creation.</p> <p>Call <code>pkt.add_data()</code> to generate the packet before transmitting the <code>pkt.buffer()</code> buffer of size <code>pkt.size()</code>.</p> <p>At reception, the user must call <code>pkt.read()</code> before using it.</p> <p>The maximum control packet size is 64 Kbytes. Control packets in ALOE include a header with 4 32-bit words:</p> <ol style="list-style-type: none"> 1) Packet Info 2) Destination Waveform Id 3) Destination Module Id 4) Destination Variable Id <p>The first word (Packet info) contains the following information (from LSB to MSB):</p> <ol style="list-style-type: none"> 1) 0..7 MANAGER->NODE: Magic word to check if it is a control packet. 0xAF NODE->MANAGER: 0xF0 if command successful or 0x0F if command error. 2) 8..15 command word (integer, up to 256 commands are supported) 3) 16..31 packet size in bytes (integer, up to 65536 bytes can be transferred) <p>Data follows after.</p>
 nod_variable	<p>A module variable is a variable that can be viewed (get) or modified (set) by the CMDAPI or any other module of the same waveform. This interaction is always <i>*asynchronous*</i> and there is no guarantee in terms of timings.</p> <p>An initialization value can be defined for a variable. In that case, it is specified in the .app file and sent to the Nodes during the waveform load phase. The waveform modules can restore their variables to the initialization value any time.</p> <p>Those variables which are not specified in the .app are not available to the manager (i.e. there is any ModuleVariable object associated to the Module object) until the module calls the <code>SWAPI.InitVariable()</code> function and the manager calls the <code>moduleObj.update()</code> or <code>waveformObj.update()</code> functions. It is recommended that the modules initialize their variables during <code>INIT()</code> and the manager calls <code>waveformObj.update()</code> after a successful <code>INIT</code>.</p> <p>This class is used by ALOE-Node. The CMDAPI uses the <code>CmdVariable</code>, which inherits from this class.</p>
 nod_module	<p>Stores the attributes of waveform module.</p>



`nod_module_execinfo`

The class attributes save information relative to the execution of the module.

Details




`nod_dispatcher`

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Author	ismael
Create Date Time	Oct 5, 2012 1:51:35 PM
Last Modified	Oct 9, 2012 9:36:13 AM


Operations


package dispatch (pkt : packet)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 8, 2012 2:01:33 PM
	Last Modified	Oct 8, 2012 2:09:03 PM
	Type	packet
	Direction	inout
Static	false	
Leaf	false	
Documentation	Checks the packet command and calls a method to process it	
Author	ismael	
Create Date Time	Sep 13, 2012 8:40:32 PM	
Last Modified	Oct 8, 2012 2:09:03 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

private load (pkt : packet)

Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 8, 2012 2:01:39 PM
	Last Modified	Oct 8, 2012 2:09:03 PM
	Type	 packet
	Direction	inout
Static	false	
Leaf	false	
Documentation	<p>The process creation is slightly complex in order to correctly isolate the hwapi from the swapi and node functionality. Therefore, the hwapi.Process class has no information on what a pid or a Node/Module class is, and what are they used for. Conversely, the Process.startup() call accepts a pointer argument which are passed to the swapi, who does know what to do with it (actually, it is a pointer to the module object).</p> <ol style="list-style-type: none"> 1) Find in +loaded_waveforms the first object with Status=STOP 2) unserializeTo() this object 3) for each module in the waveform, find an empty Process object in hwapi.procs array <ol style="list-style-type: none"> 3.a) Set binaryPath, execPosition, processorIdx and Module in Process attributes 3.b) Set finishCallback function pointer to processError 3.c) Save Process pointer to moduleObj.process 3.d) call to moduleObj.pid=hwapi.procs[i].create() method 3.e) call hwapi.procs[i].startPoint(myModuleObj,probelft); Check for error in returned value. 4) Set the waveform status to LOADED 5) send ACK ok 	
Author	ismael	
Create Date Time	Sep 13, 2012 9:02:32 PM	
Last Modified	Oct 8, 2012 2:09:03 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

private set (pkt : packet)

Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 8, 2012 2:01:41 PM
	Last Modified	Oct 8, 2012 2:09:03 PM
	Type	 packet
	Direction	inout
Static	false	
Leaf	false	
Documentation	1) Use processing_packet.getDest() to get the destination object 2) Find waveformId 3) If moduleId=0, unserializeTo(waveform.status) and return OK 4) Find moduleId 5) If variableId=0 do nothing (nothing implemented) return ERR 6) Find variableId, unserializeTo(waveform.module.variable) and return OK If at any stage, the Id is not found, return ERR	
Author	ismael	
Create Date Time	Sep 18, 2012 9:56:48 AM	
Last Modified	Oct 8, 2012 2:09:03 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


private get (pkt : packet)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 8, 2012 2:01:42 PM
	Last Modified	Oct 8, 2012 2:09:03 PM
	Type	 packet
	Direction	inout
Static	false	
Leaf	false	
Documentation	1) Use processing_packet.getDest() to get the destination object 2) If waveformId=0, serialize() node and return OK 3) Find waveformId 4) If moduleId=0, serialize() waveform and return OK 5) Find moduleId	

	6) If variableId=0 serialize() waveform.module.execInfo and return OK 7) Find variableId, serialize() waveform.module.variable and return OK If at any stage, the Id is not found, return ERR
Author	ismael
Create Date Time	Sep 17, 2012 12:32:12 AM
Last Modified	Oct 8, 2012 2:09:03 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

private connect_node ()	
Static	false
Leaf	false
Documentation	1) Connect all output data interfaces
Author	ismael
Create Date Time	Sep 26, 2012 10:41:46 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

private disconnect_node ()	
Static	false
Leaf	false
Documentation	1) Disconnect all output interfaces
Author	ismael
Create Date Time	Sep 26, 2012 10:41:51 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


private hwinfo (pkt : packet)

Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 8, 2012 2:01:45 PM
	Last Modified	Oct 8, 2012 2:09:03 PM
	Type	 packet
	Direction	inout
Static	false	
Leaf	false	
Documentation	Copies the contents of the hwapi.machine structure to the packet	
Author	ismael	
Create Date Time	Oct 5, 2012 3:26:52 PM	
Last Modified	Oct 8, 2012 2:09:03 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

nod_sync

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Author	ismael
Create Date Time	Oct 5, 2012 1:51:05 PM
Last Modified	Oct 9, 2012 9:36:13 AM

Operations

package master (itf : hwapi_itfphysic)		
Parameters	itf	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 27, 2012 2:55:30 PM
	Last Modified	Oct 8, 2012 12:11:32 PM
	Type	 hwapi_itfphysic
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Sep 18, 2012 10:13:07 AM	
Last Modified	Oct 8, 2012 1:01:34 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


package slave ()	
Static	false
Leaf	false
Author	ismael
Create Date Time	Sep 18, 2012 10:15:45 AM
Last Modified	Oct 8, 2012 1:01:34 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

package request ()	
Static	false
Leaf	false
Author	ismael
Create Date Time	Sep 27, 2012 2:36:44 PM
Last Modified	Oct 8, 2012 1:01:34 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false



nod_waveform_status

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Author	ismael
Create Date Time	Oct 9, 2012 11:54:26 AM
Last Modified	Oct 9, 2012 12:07:31 PM


Operations

package serialize (pkt : packet)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 13, 2012 11:03:03 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Copy all attributes	
Author	ismael	
Create Date Time	Sep 13, 2012 10:30:12 PM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

package unserializeTo (pkt : packet, dest : serializable)

Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
	dest	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 serializable
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	<p>This function is called when a new status change has been indicated. This unserialize function is a bit more complex, since it must ensure that the status has been changed successfully.</p> <p>1) Copy all attributes 2) call hwapi.sleepToTstamp(dead_tstamp) to sleep until dead_tstamp 3) when back, return OK if all modules have the correct status. Return ERR otherwise</p>	
Author	ismael	
Create Date Time	Sep 14, 2012 1:49:55 PM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

Relationships







Unnamed Association		
From	Name	Value
	End Model Element	 nod_waveform
	Author	ismael
	Create Date Time	Oct 9, 2012 12:04:15 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 9, 2012 12:04:15 PM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	















hwapi

Name	Value
Abstract	false
Leaf	false
Root	false
Author	ismael
Create Date Time	Sep 17, 2012 5:46:05 PM
Last Modified	Oct 8, 2012 1:49:02 PM
Visibility	public


Children

Name	Documentation
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 hwapi	<p>The Base HWAPI class abstracts the platform (OS) and hardware particularities, for instance: timers, shared memory, physical interfaces and process creation/scheduling.</p> <p>Only one instance of this class can be created on each node. This is created by the kernel-thread class at boot of every node or by the Manager process. The hwapi is in charge of controlling thread-local-storage. Therefore, there is no need to pass a pointer to the hwapi context to each function call. In linux, can be implemented using POSIX TLS or __thread GCC. However, this is not strictly required since only one execution thread access thread-sensible functions at a time.</p>
 hwapi_machine	Public structure configured at initialize() from the information read from platform.conf. Stores some properties of the local machine architecture.
 hwapi_kernel	<p>The HWAPI kernel schedules the execution of the ALOE-Node class and waveform modules in each platform's node. The main() is implemented in this class. When it starts, it creates the HWAPI-base class (which instantiates the rest of hwapi classes) and the ALOE-Node class (which processes commands from the manager). It initializes hardware devices and runs the main kernel timer.</p> <p>The execution timer, in Linux, can be driven from three different sources, chosen from the platform.conf file :</p> <ol style="list-style-type: none"> 1) POSIX real-time timer 2) Synchronization packet, through a POSIX semaphore 3) Digital converter, through a POSIX semaphore
 hwapi_process	<p>A HWAPI Process is defined as dynamically loaded shared library with two symbols that *MUST* be defined:</p> <ul style="list-style-type: none"> - _startup(arg0,arg1): This function is called at load-time and is not subject to real-time constraints. - _runCycle(): This function is called each time-slot and is subject to real-time constraints. <p>It is used to load and execute signal processing waveform modules.</p> <p>The HWAPI.Process objects are instantiated by Base.initializeNode() function at boot. A call to create() loads the module into memory. A call to startup() calls the _startup() function and a call to places the _runCycle() function into the pipelined execution queue (see Proc-Thread class)</p>
 hwapi_periodic	
 hwapi_pipeline	<p>A ProcThread is a POSIX-thread that runs in a single processor core with real-time priority and FIFO-scheduling (non-preemptable). It has a queue of function pointers which are called one after another. This functions are supposed to run SP tasks.</p> <p>The thread is synchronized with the kernel-thread with a shared memory POSIX semaphore. At the beginning of the timeslot, the kernel-thread activates a semaphore indicating the Proc-</p>

	Thread may start its execution. After all functions are called, the Proc-Thread blocks on the semaphore again. These threads are detachable.
 hwapi_processorerrors	
 hwapi_file	A non-instantiable class (no attributes). Just a collection of functions associated to file management.
 hwapi_shm	A non-instantiable class (no attributes). Just a collection of functions associated to shared memory management.
 hwapi_task	
 hwapi_time	
 hwapi_error	
 hwapi_errorcodes	
 hwapi_dac	This is the interface to the digital converters. Each converter must implement the interface in a particular class
 hwapi_dacchannel	
 hwapi_dacuhd	Implementation of the DAC interface to the Universal Hardware Driver (UHD) for USRP family of devices.
 hwapi_dacx5	
 hwapi_itf	Abstract class that manages the hwapi data or control, physical or logical interfaces.
 hwapi_itfphysic	In linux, physical interfaces are TCP/IP Ethernet interfaces. They inherit from the Interface abstract class. Supported protocols are TCP and UDP. Modes can be IN, which creates an input socket and accepts the connection in TCP; or OUT, which creates the output socket.
 hwapi_itfqueue	A Queue is an interface used for inter-module communications. It implements the methods of the Interface class only. Not yet specified. Possibly use a third party library.

Relationships


uses : Import	
From	 nod_anode
Visibility	Unspecified
Stereotypes	import
Author	ismael
Create Date Time	Oct 5, 2012 3:30:12 PM
Last Modified	Oct 8, 2012 12:51:34 PM


nod_anode


Name	Value
Active	false


Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	<p>This is the class that processes the commands coming from the ALOE-Manager.</p> <p>The HWAPI runs a background process and creates an object of this class. The HWAPI is responsible to periodically check for incoming messages from the control interface and call the process_cmd() function</p>
Author	ismael
Create Date Time	Sep 13, 2012 5:15:34 PM
Last Modified	Oct 9, 2012 12:07:31 PM

Attributes


private sync_itf : hwapi_itfphysic			
Author	ismael		
Create Date Time	Sep 25, 2012 11:43:39 AM		
Last Modified	Oct 8, 2012 12:51:34 PM		
Type	 hwapi_itfphysic		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

private ctr_iltf : hwapi_itfphysic			
Author	ismael		
Create Date Time	Sep 25, 2012 11:43:53 AM		
Last Modified	Oct 8, 2012 12:51:34 PM		
Type	 hwapi_itfphysic		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

private probe_itf : hwapi_itfphysic			
Author	ismael		
Create Date Time	Sep 27, 2012 2:30:56 PM		
Last Modified	Oct 8, 2012 12:51:34 PM		
Type	 hwapi_itfphysic		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


private slaves_itf : hwapi_itfphysic			
Author	ismael		
Create Date Time	Sep 27, 2012 2:31:02 PM		
Last Modified	Oct 8, 2012 12:51:34 PM		
Type Modifier	[]		
Type	 hwapi_itfphysic		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Operations

package initialize (hwapi : hwapi)		
Parameters	hwapi	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 1, 2012 7:29:04 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 hwapi
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	<p>1) Pre-allocates max_waveforms objects of type Waveform (with max_modules_x_waveform and max_variables_x_module modules and variables object instances) in the +loaded_waveforms array and initialize synchronization master/slave</p> <p>2) Find physical interface with name "ctrl" and save to ctrlItf</p> <p>3) Find physical interface with name "probe" and save to probelItf</p> <p>4) If !hwapi.machine.syncMaster,</p> <p> 4.1) find physical interface with name "sync" and save pointer to syncItf</p> <p> 4.2) syncItf.setCallback(SyncSlave,kernelPrio)</p> <p> 4.3) if !hwapi.machine.syncContinuous add periodic function SyncRequest() to the kernel with period "period"</p> <p>5) If hwapi.machine.syncMaster,</p> <p> 5.1) find all physical interface with name starting with "slavesync*" and save their object address to slavelf array</p>	


	5.2) if hwapi.machine.isContinuous add SyncMaster() as a periodic function to the kernel with period 1 5.3) if !hwapi.machine.isContinuous slaveltf[i].setCallback(SyncMaster,kernelPrio) for each slaveltf
Author	ismael
Create Date Time	Sep 16, 2012 11:48:38 PM
Last Modified	Oct 8, 2012 1:01:34 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


package cmd_rcv ()	
Static	false
Leaf	false
Documentation	This is a thread created by the hwapi kernel thread with normal priority. Reads commands from ctrl interface and processes them.
Author	ismael
Create Date Time	Oct 2, 2012 11:39:26 AM
Last Modified	Oct 8, 2012 1:01:34 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


package processFinish (process : hwapi_process)		
Parameters	process	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 4, 2012 1:34:07 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 hwapi_process
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	<p>This function is called by a Process object when his module finishes the execution.</p> <p>If process.finishCode!=ProcessErrorCode.OK, an excepcional error occurred. The reason is stored in process.errorMsg string. This function then uses the probeltf to send a message to the</p>	

	manager with the format detailed in CmdPlatform.asyncError() method.
Author	ismael
Create Date Time	Oct 4, 2012 1:32:39 AM
Last Modified	Oct 8, 2012 1:01:34 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

Relationships

Unnamed Association		
To (packet)	Name	Value
	End Model Element	 packet
	Author	ismael
	Create Date Time	Sep 19, 2012 8:59:11 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Sep 19, 2012 8:59:11 PM	
Last Modified	Oct 8, 2012 1:02:44 PM	
Derived	false	

Unnamed Association		
To (loaded_waveforms)	Name	Value
	End Model Element	 nod_waveform
	Author	ismael
	Create Date Time	Sep 17, 2012 12:28:31 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	waveforms_MAX
	Visibility	package
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Sep 17, 2012 12:28:31 AM	
Last Modified	Oct 8, 2012 12:51:34 PM	
Derived	false	


uses : Import	
To	 hwapi
Visibility	Unspecified
Stereotypes	import
Author	ismael
Create Date Time	Oct 5, 2012 3:30:12 PM
Last Modified	Oct 8, 2012 12:51:34 PM

nod_waveform



Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false

Root	false
Documentation	Used by the node to save the loaded waveforms, its modules and variables. At LOAD command, the class is received and serializedTo() a free Waveform object instance. Then waveform attributes, modules and variables and all their attributes are created on pre-allocated objects instances.
Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 9, 2012 12:42:53 PM


Operations


package serialize (pkt : packet)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 13, 2012 11:03:03 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Save attributes (and status) and call waveform.moduleObj[i].serialize() for all modules	
Author	ismael	
Create Date Time	Sep 13, 2012 10:30:12 PM	
Last Modified	Oct 9, 2012 12:42:53 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


package unserializeTo (pkt : packet, dest : serializable)

Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
	dest	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 serializable
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Save attributes to the object instance and call waveform.moduleObj[i].unserializeTo() all nof_modules module instances	
Author	ismael	
Create Date Time	Sep 14, 2012 1:49:55 PM	
Last Modified	Oct 8, 2012 11:20:37 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

Relationships

Unnamed Association		
To (modules)	Name	Value
	End Model Element	 nod_module
	Author	ismael
	Create Date Time	Sep 12, 2012 1:50:47 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	modules_MAX
	Visibility	public
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Sep 12, 2012 1:50:47 AM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	

Unnamed Association		
To (status)	Name	Value
	End Model Element	 nod_waveform_status
	Author	ismael
	Create Date Time	Oct 9, 2012 12:04:15 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 9, 2012 12:04:15 PM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	

Unnamed Association		
From	Name	Value
	End Model Element	 nod_anode
	Author	ismael
	Create Date Time	Sep 17, 2012 12:28:31 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Sep 17, 2012 12:28:31 AM	
Last Modified	Oct 8, 2012 12:51:34 PM	
Derived	false	

packet

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	<p>This class generates and reads the contents of a control packet, managing the specific header requirements (in the future, should support different kinds of endianness). The buffer is statically allocated at object creation.</p> <p>Call <code>pkt.add_data()</code> to generate the packet before transmitting the <code>pkt.buffer()</code> buffer of size <code>pkt.size()</code>.</p> <p>At reception, the user must call <code>pkt.read()</code> before using it.</p>


	<p>The maximum control packet size is 64 Kbytes. Control packets in ALOE include a header with 4 32-bit words:</p> <ol style="list-style-type: none"> 1) Packet Info 2) Destination Waveform Id 3) Destination Module Id 4) Destination Variable Id <p>The first word (Packet info) contains the following information (from LSB to MSB):</p> <ol style="list-style-type: none"> 1) 0..7 MANAGER->NODE: Magic word to check if it is a control packet. 0xAF NODE->MANAGER: 0xF0 if command successful or 0x0F if command error. 2) 8..15 command word (integer, up to 256 commands are supported) 3) 16..31 packet size in bytes (integer, up to 65536 bytes can be transferred) <p>Data follows after.</p>
Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 9, 2012 12:07:31 PM


Attributes

package buffer : ALOEClasses.Utils.void			
Documentation	This is the pointer to the packet buffer. The buffer is statically allocated at object creation.		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 1:01:34 PM		
Type Modifier	*		
Type	ALOEClasses.Utils.void		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package buffer_sz : int

Documentation	Size of the packet buffer		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 1:01:34 PM		
Initial Value	0		
Type	int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package w_ptr : int			
Documentation	Packet write pointer		
Author	ismael		
Create Date Time	Sep 19, 2012 7:43:35 PM		
Last Modified	Oct 8, 2012 1:01:34 PM		
Initial Value	0		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package r_ptr : int			
Documentation	Packet read pointer		
Author	ismael		
Create Date Time	Sep 19, 2012 7:44:50 PM		
Last Modified	Oct 8, 2012 1:01:34 PM		
Initial Value	0		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false

Derived	false
Multiplicity	Unspecified
Dotnet Code Detail	N/A
Aggregation	None
Derived Union	false
Read Only	false
Leaf	false

Operations

package clear ()	
Static	false
Leaf	false
Documentation	Clears the packet contents and its header (including command type)
Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 8, 2012 1:01:34 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

package read ()	
Static	false
Leaf	false
Documentation	Reads the packet header. This function must be called at reception before calling get_cmd() or get_data().
Author	ismael
Create Date Time	Sep 19, 2012 7:53:48 PM
Last Modified	Oct 8, 2012 1:01:34 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

package buffer () : void	
Static	false
Leaf	false
Documentation	Returns a pointer to the packet buffer (for transmission and reception through the interface functions)
Author	ismael
Create Date Time	Sep 19, 2012 7:45:43 PM

Last Modified	Oct 8, 2012 1:01:34 PM
Type Modifier	*
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false



package set_cmd (cmd : Command)		
Parameters	cmd	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 12, 2012 1:50:47 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	Command
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Defines the command field on the packet header.	
Author	ismael	
Create Date Time	Sep 12, 2012 1:50:47 AM	
Last Modified	Oct 8, 2012 1:01:34 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

package get_cmd () : Command	
Static	false
Leaf	false
Documentation	returns the command field from the packet header.
Author	ismael
Create Date Time	Sep 13, 2012 8:56:26 PM
Last Modified	Oct 8, 2012 1:01:34 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

package add_data (data : void*, len : int) : int


Parameters	data	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 12, 2012 1:50:47 AM
	Last Modified	Oct 9, 2012 10:25:18 AM
	Type	void*
	Direction	inout
	Dotnet Code Detail	N/A
	len	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 12, 2012 1:50:47 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Appends "len" bytes from "data" pointer to the end of the packet unless there is not enough space in the packet. Returns the number of bytes that where successfully appended.	
Author	ismael	
Create Date Time	Sep 12, 2012 1:50:47 AM	
Last Modified	Oct 8, 2012 1:01:34 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

```
package get_data (buffer : void, len : int) : int
```

Parameters	buffer	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 19, 2012 7:55:59 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	 void
	Direction	inout
	Dotnet Code Detail	N/A
	len	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 19, 2012 7:55:12 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Copies "len" bytes of the packet data to the buffer pointed by "buffer" unless the packet has no more data to read. Returns the number of bytes that were successfully copied.	
Author	ismael	
Create Date Time	Sep 19, 2012 7:54:59 PM	
Last Modified	Oct 8, 2012 1:01:34 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

package max_size () : int	
Static	false
Leaf	false
Documentation	Returns the maximum size of the packet (in bytes)
Author	ismael
Create Date Time	Sep 13, 2012 8:57:08 PM
Last Modified	Oct 8, 2012 1:01:34 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


package size () : int	
Static	false
Leaf	false
Documentation	Returns the current size of the packet (in bytes)
Author	ismael
Create Date Time	Sep 14, 2012 12:40:56 AM
Last Modified	Oct 8, 2012 1:01:34 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

package set_ack (ack : boolean)		
Parameters	ack	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 19, 2012 8:59:34 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 boolean
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Sep 19, 2012 8:59:20 PM	
Last Modified	Oct 8, 2012 1:01:34 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

package get_ack () : boolean	
Static	false
Leaf	false
Author	ismael
Create Date Time	Sep 19, 2012 8:59:34 PM
Last Modified	Oct 8, 2012 1:01:34 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

package get_header () : int	
Static	false
Leaf	false
Documentation	returns the first 32-bit word of the packet
Author	ismael
Create Date Time	Oct 4, 2012 10:14:23 AM
Last Modified	Oct 8, 2012 1:01:34 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

Relationships


Unnamed Association		
From	Name	Value
	End Model Element	 nod_anode
	Author	ismael
	Create Date Time	Sep 19, 2012 8:59:11 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Sep 19, 2012 8:59:11 PM	
Last Modified	Oct 8, 2012 1:02:44 PM	
Derived	false	


nod_variable

Name	Value
------	-------


Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	<p>A module variable is a variable that can be viewed (get) or modified (set) by the CMDAPI or any other module of the same waveform. This interaction is always <i>*asynchronous*</i> and there is no guarantee in terms of timings.</p> <p>An initialization value can be defined for a variable. In that case, it is specified in the .app file and sent to the Nodes during the waveform load phase. The waveform modules can restore their variables to the initialization value any time.</p> <p>Those variables which are not specified in the .app are not available to the manager (i.e. there is any ModuleVariable object associated to the Module object) until the module calls the SWAPI.InitVariable() function and the manager calls the moduleObj.update() or waveformObj.update() functions. It is recommended that the modules initialize their variables during INIT() and the manager calls waveformObj.update() after a successful INIT.</p> <p>This class is used by ALOE-Node. The CMDAPI uses the CmdVariable, which inherits from this class.</p>
Author	ismael
Create Date Time	Sep 19, 2012 8:21:25 PM
Last Modified	Oct 9, 2012 12:20:53 PM

Attributes



package report_packet : packet			
Author	ismael		
Create Date Time	Oct 3, 2012 1:00:03 PM		
Last Modified	Oct 9, 2012 12:20:53 PM		
Type	 packet		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package shm_addr : void			
Documentation	Pointer to the shared memory region where the variable is stored.		
Author	ismael		
Create Date Time	Sep 14, 2012 2:40:19 PM		
Last Modified	Oct 9, 2012 12:20:53 PM		
Type Modifier	*		
Type	 void		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


Operations

package serialize (pkt : packet)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 13, 2012 11:03:03 PM
	Last Modified	Oct 9, 2012 12:07:31 PM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Serialize all attributes including variable value (shmPtr) if size>0	
Author	ismael	
Create Date Time	Sep 13, 2012 10:30:12 PM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

package unserializeTo (pkt : packet, dest : serializable)

Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 9, 2012 12:07:31 PM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
	dest	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 9, 2012 12:07:31 PM
	Type	 serializable
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	<p>Save window and period attributes. If size>0, save variable value to shmPtr while checking size.</p> <p>If new window>0 and period>0, add the variable to module.reportingVariable and increase module.nof_report_vars clear the reportPacket and set periodCnt=0</p> <p>If new window=0 and period=0, remove the variable to module.reportingVariable and decrease module.nof_report_vars</p>	
Author	ismael	
Create Date Time	Sep 14, 2012 1:49:55 PM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


Relationships



Unnamed Association		
From	Name	Value
	End Model Element	 nod_module
	Author	ismael
	Create Date Time	Oct 9, 2012 12:01:01 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 9, 2012 12:01:01 PM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	

nod_module

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	Stores the attributes of waveform module.
Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 9, 2012 12:20:53 PM


Operations


package serialize (pkt : packet)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 13, 2012 11:03:03 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	call module_serialize()	
Author	ismael	
Create Date Time	Sep 13, 2012 10:30:12 PM	
Last Modified	Oct 9, 2012 12:20:53 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


package unserializeTo (pkt : packet, dest : serializable)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
	dest	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 serializable
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	call module_unserialize()	
Author	ismael	

Create Date Time	Sep 14, 2012 1:49:55 PM
Last Modified	Oct 9, 2012 12:20:53 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

Relationships

Unnamed Association		
To (reporting*)	Name	Value
	End Model Element	 nod_variable
	Author	ismael
	Create Date Time	Oct 9, 2012 12:01:01 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	variables_MAX
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 9, 2012 12:01:01 PM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	



Unnamed Association		
To (execinfo)	Name	Value
	End Model Element	 nod_module_execinfo
	Author	ismael
	Create Date Time	Sep 12, 2012 1:50:47 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	public
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Sep 12, 2012 1:50:47 AM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	


Unnamed Association		
From (waveform*)	Name	Value
	End Model Element	 nod_waveform
	Author	ismael
	Create Date Time	Sep 12, 2012 1:50:47 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	public
	Aggregation Kind	Composited
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Sep 12, 2012 1:50:47 AM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	

nod_module_execinfo



Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	The class attributes save information relative to the execution of the module.
Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 9, 2012 12:24:28 PM

Operations


package add_sample (cpu : int, relinquish : int)		
Parameters	cpu	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 9, 2012 12:21:06 PM
	Last Modified	Oct 9, 2012 12:24:28 PM
	Type	 int
	Direction	inout
	relinquish	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 9, 2012 12:21:06 PM
	Last Modified	Oct 9, 2012 12:24:28 PM
	Type	 int
	Direction	inout
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Oct 9, 2012 12:20:50 PM	
Last Modified	Oct 9, 2012 12:24:28 PM	
Ordered	false	
Unique	true	
Query	false	

package serialize (pkt : packet)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 13, 2012 11:03:03 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	- Save all attributes	
Author	ismael	
Create Date Time	Sep 13, 2012 10:30:12 PM	
Last Modified	Oct 8, 2012 11:20:37 AM	
Ordered	false	

Unique	true
Dotnet Code Detail	N/A
Query	false

package unserializeTo (pkt : packet, dest : serializable)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
	dest	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 serializable
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Do nothing	
Author	ismael	
Create Date Time	Sep 14, 2012 1:49:55 PM	
Last Modified	Oct 8, 2012 11:20:37 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

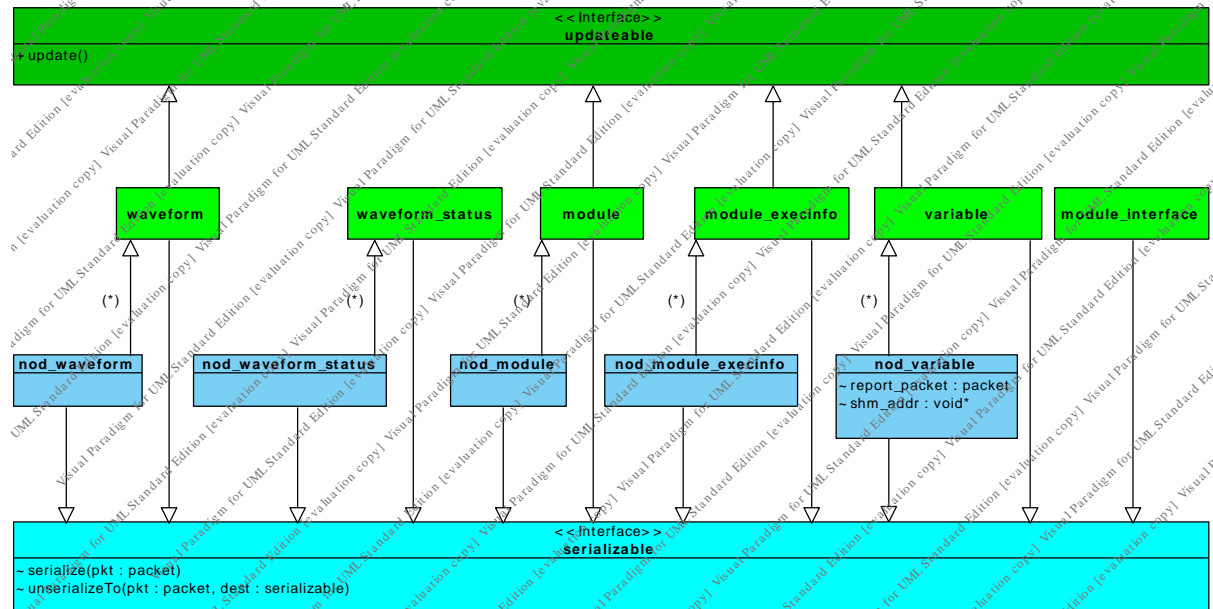
Relationships

Unnamed Association		
From	Name	Value
	End Model Element	 nod_module
	Author	ismael
	Create Date Time	Sep 12, 2012 1:50:47 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	public
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Sep 12, 2012 1:50:47 AM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Derived	false	

Class Diagram

node-manager relations




(*) Only parent class ATTRIBUTES are inherited
bt nod_* from *












Name	Value
Name	node-manager relations
Author	ismael
Create Date Time	Oct 8, 2012 9:03:06 PM
Last Modified	Oct 9, 2012 1:07:39 PM

Summary

Name	Documentation
updateable	
waveform	<p>Inherits from General.Waveform class. After the waveform is loaded to a platform, the class allows to send status change commands and update the local objects with the remote ALOE-Node waveform objects. A waveform must be parsed (parse()) prior to being loaded (load()).</p> <p>Sample waveform configuration file:</p> <pre> ===== modules: { convcoder: { binary="convcoder1.0.so"; proc=XXX // in mopts </pre>

	<pre> outputs=(("output1", "decoder", "input1", 0.3), /* localltfName, remoteModuleName, remoteItfName, BW requirements (in mbpts) */ ("output2", "otherMod", "output2", 1)); variables=((name="code"; value=[0x79,0x10,0xf4;]), (name="blocksize"; value=100;)); }; decoder: { binary="decoder1.2.so"; proc=XXX // in mopts inputs=("input1", "convcoder", "output1"); /* Inputs do not specify BW. Must coincide with output interface */ outputs=("output1", "sink", "input1", 0.1); variables=((name="code"; value=[0x79,0x10,0xf4;]), (name="blocksize"; value=100;), (name="SNR"; value=3.2;)); }; decoder: { binary="decoder1.2.so"; proc=XXX // in mopts inputs=("input1", "decoder", "output1"); }; options: { max_delay_us=2000; /* This is currently not in use */ pre_mapping=(("decoder", "sink"), (/* another vector of joined modules */)); } </pre>
 waveform_status	
 module	Inherits from General.Module class. Part of the CMDAPI, used to update module's variables or execinfo information
 module_execinfo	Inherits from General.ModExecInfo class. Part of the CMDAPI, adds functionality to retrieve module's ExecInfo attributes

 <code>variable</code>	Inherits from General.ModVariable. Part of the CMDAPI. Adds functionality to set or obtain variable values from the distributed modules.
 <code>module_interface</code>	Data interface between modules.
 <code>nod_waveform</code>	Used by the node to save the loaded waveforms, its modules and variables. At LOAD command, the class is received and serializedTo() a free Waveform object instance. Then waveform attributes, modules and variables and all their attributes are created on pre-allocated objects instances.
 <code>nod_waveform_status</code>	
 <code>nod_module</code>	Stores the attributes of waveform module.
 <code>nod_module_execinfo</code>	The class attributes save information relative to the execution of the module.
 <code>nod_variable</code>	<p>A module variable is a variable that can be viewed (get) or modified (set) by the CMDAPI or any other module of the same waveform. This interaction is always *asynchronous* and there is no guarantee in terms of timings.</p> <p>An initialization value can be defined for a variable. In that case, it is specified in the .app file and sent to the Nodes during the waveform load phase. The waveform modules can restore their variables to the initialization value any time.</p> <p>Those variables which are not specified in the .app are not available to the manager (i.e. there is any ModuleVariable object associated to the Module object) until the module calls the SWAPI.InitVariable() function and the manager calls the moduleObj.update() or waveformObj.update() functions. It is recommended that the modules initialize their variables during INIT() and the manager calls waveformObj.update() after a successful INIT.</p> <p>This class is used by ALOE-Node. The CMDAPI uses the CmdVariable, which inherits from this class.</p>
 <code>serializable</code>	
 <code>N/A</code>	(*) Only parent class ATTRIBUTES are inherited bt nod_* from *.

Details

updateable


Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Stereotypes	Interface
Author	ismael
Create Date Time	Oct 8, 2012 1:04:04 PM
Last Modified	Oct 9, 2012 12:07:31 PM


Operations

public update ()	
Static	false
Leaf	false
Author	ismael
Create Date Time	Oct 8, 2012 1:04:09 PM
Last Modified	Oct 8, 2012 1:15:54 PM
Ordered	false
Unique	true
Query	false

Relationships

Unnamed Generalization	
To	 waveform
Author	ismael
Create Date Time	Oct 9, 2012 10:25:43 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified

Unnamed Generalization	
To	 module_execinfo
Author	ismael
Create Date Time	Oct 9, 2012 11:41:21 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified

Unnamed Generalization	
To	 module
Author	ismael
Create Date Time	Oct 9, 2012 11:41:32 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified

Unnamed Generalization	
To	 variable
Author	ismael
Create Date Time	Oct 9, 2012 11:42:56 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified

waveform

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	<p>Inherits from General.Waveform class. After the waveform is loaded to a platform, the class allows to send status change commands and update the local objects with the remote ALOE-Node waveform objects. A waveform must be parsed (parse()) prior to being loaded (load()).</p> <p>Sample waveform configuration file:</p> <pre>===== modules: { convcoder: { binary="convcoder1.0.so"; proc=XXX // in mopts outputs=(("output1", "decoder", "input1", 0.3), /* localTtfName, remoteModuleName, remoteTtfName, BW requirements (in mbpts) */ ("output2", "otherMod", "output2", 1)) }</pre>

	<pre>); variables=((name="code"; value=[0x79,0x10,0xf4]); (name="blocksize"; value=100;)); }; decoder: { binary="decoder1.2.so"; proc=XXX // in mopts inputs=("input1", "convcoder", "output1"); /* Inputs do not specify BW. Must coincide with output interface */ outputs=("output1", "sink", "input1", 0.1); variables=((name="code"; value=[0x79,0x10,0xf4]); (name="blocksize"; value=100;), (name="SNR"; value=3.2;)); }; decoder: { binary="decoder1.2.so"; proc=XXX // in mopts inputs=("input1", "decoder", "output1"); }; options: { max_delay_us=2000; /* This is currently not in use */ pre_mapping=(("decoder", "sink"), (/* another vector of joined modules */)); } </pre>
Author	ismael
Create Date Time	Sep 14, 2012 1:12:35 AM
Last Modified	Oct 9, 2012 1:01:12 PM

Attributes


public id : int	
Documentation	Automatically generated waveform id. Must be unique in the platform.
Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 8, 2012 11:53:19 PM


Type	int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public name : string			
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public last_update_ts : int			
Documentation	Timeslot of the last update		
Author	ismael		
Create Date Time	Sep 14, 2012 11:56:39 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	1		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public status_timestamp_delay : int			
Documentation	Number of timeslots to delay an status change. Should be larger than the maximum delay (in timeslots) to any Node		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public c : float			
Documentation	vector of computing requirements, in mopts		
Author	ismael		
Create Date Time	Sep 18, 2012 12:47:32 PM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type Modifier	[]		
Type	 float		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public b : float			
Documentation	matrix of bandwidth requirements, in mbpts		
Author	ismael		
Create Date Time	Sep 18, 2012 12:48:11 PM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type Modifier	[]		
Type	 float		
Allow Empty Name	false		


Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public nof_modules : int			
Author	ismael		
Create Date Time	Oct 9, 2012 12:18:04 PM		
Last Modified	Oct 9, 2012 12:20:53 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public mapped_nodes_id : int			
Author	ismael		
Create Date Time	Oct 9, 2012 12:34:19 PM		
Last Modified	Oct 9, 2012 12:40:54 PM		
Type Modifier	[nodes_MAX]		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public model_file : string			
Author	ismael		
Create Date Time	Oct 9, 2012 12:56:26 PM		
Last Modified	Oct 9, 2012 1:01:12 PM		
Type	 string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

private mapping : mapping			
Documentation	Static temporal variable to do the mapping. After the mapping is done and modules assigned. Each module stores a pointer to the loaded node and keeps the processor index		
Author	ismael		
Create Date Time	Oct 9, 2012 10:51:11 AM		
Last Modified	Oct 9, 2012 11:08:36 AM		
Type	 mapping		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


private transferring_node_id : int			
Author	ismael		
Create Date Time	Oct 9, 2012 11:14:23 AM		
Last Modified	Oct 9, 2012 12:40:54 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Operations


public load ()	
Static	false
Leaf	false
Documentation	<p>Uses the platform object to load the waveform into the platform. The procedure is:</p> <ol style="list-style-type: none"> 1) Verify isParsed is true 2) Use the private mapping instance calling mapping_map(&mapping,self) 3) If the mapping is feasible, <ol style="list-style-type: none"> 3.1) For each module set module[i].processor_idx=mapping.p_res[i] and module.node=man_platform_node_pidx(p_res[i]); 4) For each node_id <ol style="list-style-type: none"> 4.1) set mapped_nodes[i]=node_id 4.2) set transferring_node_id=node_id 4.3) serialize waveform to man_platform_node_id(node_id), command=LOAD 6) Set the waveform status to LOADED
Author	ismael
Create Date Time	Sep 14, 2012 11:10:43 AM
Last Modified	Oct 9, 2012 12:40:54 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public update ()	
Static	false
Leaf	false



Documentation	<p>updates the module's objects with the distributed modules in the platform.</p> <ol style="list-style-type: none"> 1) Verify Status.isLoaded() 2) Iterate through the mapped_nodes_id array <ol style="list-style-type: none"> 2.1) set transferring_node_id=node_id 2.2) send command Cmd.GET to the man_platform_node_id(mapped_nodes_id[i]) with dest(waveform.Id,0,0) 2.3) unserializeTo the received packet to the local waveform object 4) set lastUpdateTS to current timeslot
Author	ismael
Create Date Time	Sep 14, 2012 11:10:54 AM
Last Modified	Oct 9, 2012 12:40:54 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public parse (name : string)		
Parameters	name	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 18, 2012 1:37:29 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 string
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	<p>Parses the waveform configuration file according to its format (specified in this class documentation). This method has to do:</p> <ol style="list-style-type: none"> 1) generate the (c,b) waveform model 2) create a Module instance for each module and add to modules array 3) create a Variable instance for each variable and add to modules[i].variables array 4) set Status=STOP <p>*NOTE*: Use libconfig file format and library for parsing</p>	
Author	ismael	
Create Date Time	Sep 12, 2012 1:50:47 AM	
Last Modified	Oct 9, 2012 1:01:12 PM	
Ordered	false	


Unique	true
Dotnet Code Detail	N/A
Query	false


package serialize (pkt : packet)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 13, 2012 10:30:12 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	- Serializes waveform attributes and call module.serialize() for all modules such that module->node.id=loading_node_id	
Author	ismael	
Create Date Time	Sep 13, 2012 10:29:07 PM	
Last Modified	Oct 9, 2012 11:29:23 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


package unserializeTo (pkt : packet, dest : serializable)

Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
	dest	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 serializable
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Save waveform status. Check that each node has the same waveform status. First word is the module id. For each module, find module id and call unserializeTo(pkt,module).	
Author	ismael	
Create Date Time	Sep 14, 2012 1:49:55 PM	
Last Modified	Oct 9, 2012 12:42:53 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

Relationships

(*) : Generalization	
To	 nod_waveform
Author	ismael
Create Date Time	Oct 9, 2012 11:48:43 AM
Last Modified	Oct 9, 2012 12:20:53 PM
Substitutable	false
Visibility	Unspecified


Unnamed Generalization	
From	 updateable
Author	ismael
Create Date Time	Oct 9, 2012 10:25:43 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified


Unnamed Generalization	
From	 serializable
Author	ismael
Create Date Time	Oct 9, 2012 10:25:46 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified

waveform_status

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Author	ismael
Create Date Time	Sep 21, 2012 12:22:45 AM
Last Modified	Oct 9, 2012 12:07:31 PM




Attributes

public next_timeslot : int			
Author	ismael		
Create Date Time	Sep 24, 2012 12:20:19 PM		
Last Modified	Oct 8, 2012 8:51:57 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public dead_timeslot : int			
Documentation	Indicates the deadline timeslot to check if the status has been changed correctly.		
Author	ismael		
Create Date Time	Oct 2, 2012 11:57:19 AM		
Last Modified	Oct 8, 2012 8:51:57 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Operations

public toString () : int	
Static	false
Leaf	false
Author	ismael
Create Date Time	Sep 14, 2012 11:37:40 AM
Last Modified	Oct 9, 2012 10:25:18 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


public set (new : waveform_status_enum, next_ts : int, dead_ts : int)		
Parameters	new	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:19:33 PM
	Last Modified	Oct 9, 2012 10:25:18 AM
	Type	 waveform_status_enum
	Direction	inout
	Dotnet Code Detail	N/A
	next_ts	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 9, 2012 10:03:29 AM
	Last Modified	Oct 9, 2012 10:25:18 AM
	Type	 int
	Direction	inout
	dead_ts	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 9, 2012 10:03:29 AM
	Last Modified	Oct 9, 2012 10:25:18 AM
	Type	 int
	Direction	inout
Static	false	
Leaf	false	
Documentation	<p>Modifies the waveform execution status. The status is first modified locally and, if the transition is valid, a command to the ALOE-Nodes is issued:</p> <ol style="list-style-type: none"> 1) Verify isLoaded() 	


	2) Check if the status transition is valid. 3) Iterate through the waveform.mapping.node array and send command Cmd.SET to dest(waveform.Id,0,0) and serialize(waveform.Status) 4) wait for reception positive ACK 5) If nextStatus=Status.INIT call waveform.update()
Author	ismael
Create Date Time	Sep 14, 2012 1:19:15 PM
Last Modified	Oct 9, 2012 10:25:18 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public isLoaded () : boolean	
Static	false
Leaf	false
Documentation	returns true if the Status is LOADED, INIT, RUN or PAUSE
Author	ismael
Create Date Time	Sep 18, 2012 2:05:00 PM
Last Modified	Oct 9, 2012 10:25:18 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public isRunning () : boolean	
Static	false
Leaf	false
Documentation	returns true if the waveform is in status RUN or PAUSE
Author	ismael
Create Date Time	Sep 18, 2012 2:24:23 PM
Last Modified	Oct 9, 2012 10:25:18 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

Relationships

(*) : Generalization	
To	 nod_waveform_status
Author	ismael
Create Date Time	Oct 9, 2012 11:55:56 AM
Last Modified	Oct 9, 2012 12:20:53 PM
Substitutable	false
Visibility	Unspecified

Unnamed Generalization	
From	 serializable
Author	ismael
Create Date Time	Oct 9, 2012 11:45:53 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified


module

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	Inherits from General.Module class. Part of the CMDAPI, used to update module's variables or execinfo information
Author	ismael
Create Date Time	Sep 17, 2012 12:20:33 AM
Last Modified	Oct 9, 2012 12:42:53 PM

Attributes

public id : int			
Documentation	Unique number (in the waveform) generated automatically in the constructor.		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	int		
Allow Empty Name	false		
Getter	false	Setter	false

Derived	false
Multiplicity	Unspecified
Dotnet Code Detail	N/A
Aggregation	None
Derived Union	false
Read Only	false
Leaf	false


public last_update_ts : int			
Author	ismael		
Create Date Time	Sep 17, 2012 12:24:28 AM		
Last Modified	Oct 8, 2012 8:51:57 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public name : string			
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public binary : string	
Documentation	name of the binary, not the full path. Depending on the platform it can be a stand-alone executable (program) or a library which is dynamically loaded.
Author	ismael


Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public c_mopts : float			
Documentation	Module processing requirements in MOPTS		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	float		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public processor_idx : int			
Documentation	Processor id where the module has been mapped.		
Author	ismael		
Create Date Time	Sep 24, 2012 12:08:33 PM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		

Read Only	false		
Leaf	false		

public status : int			
Author	ismael		
Create Date Time	Oct 2, 2012 11:55:35 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public nof_reporting_vars : int			
Author	ismael		
Create Date Time	Oct 3, 2012 12:59:14 PM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public nof_variables : int			
Author	ismael		
Create Date Time	Oct 9, 2012 12:18:14 PM		
Last Modified	Oct 9, 2012 12:20:53 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public nof_interfaces : int			
Author	ismael		
Create Date Time	Oct 9, 2012 12:18:25 PM		
Last Modified	Oct 9, 2012 12:20:53 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Operations



public update ()	
Static	false
Leaf	false
Documentation	<p>Updates the local object's attributes with the node's attributes. Retrieves also all the variables and execinfo</p> <ol style="list-style-type: none"> 1) Verify waveform.Status.isLoaded() 2) Send Cmd.GET to dest(module.waveform.Id, module.Id,0) to module.node using module.waveform.cmdPlatform 3) wait for answer and serializeTo(module) 4) update lastUpdateTS with current ts
Author	ismael
Create Date Time	Sep 17, 2012 12:20:55 AM
Last Modified	Oct 8, 2012 11:20:37 AM
Ordered	false

Unique	true
Dotnet Code Detail	N/A
Query	false


public node () : man_node	
Static	false
Leaf	false
Author	ismael
Create Date Time	Oct 8, 2012 11:21:10 AM
Last Modified	Oct 8, 2012 1:01:34 PM
Ordered	false
Unique	true
Query	false


package serialize (pkt : packet)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 13, 2012 10:30:12 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Serialize module attributes and call interface.serialize() and variable.serialize() to all interfaces and variables	
Author	ismael	
Create Date Time	Sep 13, 2012 10:29:07 PM	
Last Modified	Oct 8, 2012 11:20:37 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

package unserializeTo (pkt : packet, dest : serializable)

Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
	dest	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 serializable
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Call moduleObj.execInfo.unserializeTo(moduleObj.execInfo)	
Author	ismael	
Create Date Time	Sep 14, 2012 1:49:55 PM	
Last Modified	Oct 8, 2012 11:20:37 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

Relationships

(*) : Generalization	
To	 nod_module
Author	ismael
Create Date Time	Oct 9, 2012 11:50:03 AM
Last Modified	Oct 9, 2012 12:20:53 PM
Substitutable	false
Visibility	Unspecified

Unnamed Generalization	
From	 updateable
Author	ismael
Create Date Time	Oct 9, 2012 11:41:32 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified

Unnamed Generalization	
From	 serializable
Author	ismael
Create Date Time	Oct 9, 2012 11:41:35 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified

module_execinfo

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	Inherits from General.ModExecInfo class. Part of the CMDAPI, adds functionality to retrieve module's ExecInfo attributes
Author	ismael
Create Date Time	Sep 17, 2012 12:21:43 AM
Last Modified	Oct 9, 2012 12:07:31 PM

Attributes

public module_ts : int			
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public node_ts : int			
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public mean_exec_us : int			
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public max_exec_us : int			
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public mean_rel_us : int			
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public max_rel_us : int			
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public mean_mopts : float			
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	float		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public max_mopts : float			
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	float		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public t_exec : time_t			
Author	ismael		
Create Date Time	Oct 2, 2012 11:03:57 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type Modifier	[3]		
Type	time_t		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public last_update_ts : int			
Author	ismael		
Create Date Time	Sep 14, 2012 2:42:10 PM		
Last Modified	Oct 8, 2012 8:51:57 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		



Operations

public update ()	
Static	false
Leaf	false
Documentation	<p>Updates the local object's attributes with the node's attributes.</p> <ol style="list-style-type: none"> 1) Verify mmodule.waveform.Status.isLoaded() 2) Send Cmd.GET dest(module.waveform.Id, module.Id,0) to module.node using module.waveform.cmdPlatform 3) wait for answer and serializeTo(module.execInfo) 4) update lastUpdateTS with current ts
Author	ismael
Create Date Time	Sep 17, 2012 12:21:53 AM


Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

package serialize (pkt : packet)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 13, 2012 10:30:12 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Do nothing	
Author	ismael	
Create Date Time	Sep 13, 2012 10:29:07 PM	
Last Modified	Oct 8, 2012 11:20:37 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

package unserializeTo (pkt : packet, dest : serializable)

Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
	dest	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 serializable
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Save all attributes	
Author	ismael	
Create Date Time	Sep 14, 2012 1:49:55 PM	
Last Modified	Oct 8, 2012 11:20:37 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

Relationships

(*) : Generalization	
To	 nod_module_execinfo
Author	ismael
Create Date Time	Oct 9, 2012 11:52:54 AM
Last Modified	Oct 9, 2012 12:20:53 PM
Substitutable	false
Visibility	Unspecified


Unnamed Generalization	
From	 updateable
Author	ismael
Create Date Time	Oct 9, 2012 11:41:21 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified

Unnamed Generalization	
From	 serializable
Author	ismael
Create Date Time	Oct 9, 2012 11:41:44 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified

variable

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	Inherits from General.ModVariable. Part of the CMDAPI. Adds functionality to set or obtain variable values from the distributed modules.
Author	ismael
Create Date Time	Sep 17, 2012 12:22:42 AM
Last Modified	Oct 9, 2012 12:07:31 PM

Attributes

public id : int			
Documentation	Unique id in the waveform		
Author	ismael		
Create Date Time	Sep 21, 2012 12:12:20 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		


Multiplicity	Unspecified
Dotnet Code Detail	N/A
Aggregation	None
Derived Union	false
Read Only	false
Leaf	false

public size : int			
Documentation	Size of the variable, in bytes		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public name : string			
Documentation	Name of the variable, as it is created by the module or defined in the .app. Note the module must create its variable with the same name as defined in the .app if wants to use the initialization value.		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public init_value : ALOEClasses.Utils.void			
--	--	--	--


Documentation	Pointer to the initialization value. In the constructor, a static buffer of variable.size bytes is allocated from the HWAPI memory pool (can use shm service) where the initialization value is stored. The value is unaltered until the destructor is called, when the memory is freed.		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type Modifier	*		
Type	ALOEClasses.Utils.void		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public window : int			
Documentation	Number of samples to capture from the variable during variable reporting. If the variable has len bytes, window*len bytes will be captured each period timeslots.		
Author	ismael		
Create Date Time	Sep 19, 2012 5:49:50 PM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public period : int	
Documentation	Period, in timeslots, the variable value is reported.
Author	ismael
Create Date Time	Sep 19, 2012 5:49:55 PM
Last Modified	Oct 8, 2012 11:53:19 PM

Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public periodCnt : int			
Author	ismael		
Create Date Time	Oct 3, 2012 1:01:30 PM		
Last Modified	Oct 8, 2012 11:53:19 PM		
Initial Value	0		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public cur_value : void			
Author	ismael		
Create Date Time	Sep 19, 2012 8:54:25 PM		
Last Modified	Oct 9, 2012 9:52:06 AM		
Type Modifier	*		
Type	 void		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		



Operations

public update ()	
Static	false
Leaf	false
Documentation	Gets the variable of the module running in an ALOE-node and saves the value to the buffer "value". Only min("size",variable.size) bytes will be updated. 1) Verify module.waveform.Status=RUN 2) Send Cmd.GET dest(variable.module.waveform.Id, variable.module.Id, variable.Id) to variable.module.node using variable.module.waveform.cmdPlatform 3) wait for answer and serializeTo(variable) the packet 4) update lastUpdateTS with current ts
Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 8, 2012 11:10:36 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public value_set (value : ALOEClasses.Utils.void, size : int)		
Parameters	value	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 12, 2012 1:50:47 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	ALOEClasses.Utils.void
	Direction	inout
	Dotnet Code Detail	N/A
	size	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 12, 2012 1:50:47 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	


Documentation	<p>Sets the variable of the module running in an ALOE-node to the value pointed by the buffer "value". Only min("size",variable.size) bytes will be updated.</p> <ol style="list-style-type: none"> 1) Verify module.waveform.Status=RUN 2) Copy min("size",variable.size) bytes from "value" to curValue 3) Send Cmd.SET dest(variable.module.waveform.Id, variable.module.Id, variable.Id) to variable.module.node using variable.module.waveform.cmdPlatform and serialize(variable) 4) wait for answer. 5) update lastUpdateTS with current ts
Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false



```
public report_start (callback : fncPtr, period : int, window : int)
```

Parameters	callback	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 18, 2012 11:14:49 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	fncPtr
	Direction	inout
	Dotnet Code Detail	N/A
	period	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 18, 2012 10:48:04 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
	window	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 18, 2012 10:48:04 AM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	<p>Begins a continuous report of a variable value with a given period and window. Each timeslot, the module produces a new variable value, which is received by the manager who calls the function pointed by "fncPtr".</p> <ol style="list-style-type: none"> 1) Verify module.waveform.Status.isRunning() 2) Use module.node.probeListener.addCallback(fncPtr, variable.Id) to setup a callback handler to the Probe physical interface. 3) save window and period attributes. Save size to temporal variable. Set size to 0. 4) Send Cmd.SET dest(variable.module.waveform.Id, variable.module.Id, variable.Id) to module.node using module.waveform.cmdPlatform and serialize(variable) 5) Restore size from temporal variable. 6) Waits for ACK. If OK quits otherwise removes the callback using module.node.probeListener.removeCallback(variable.Id) 	


Author	ismael
Create Date Time	Sep 18, 2012 10:47:48 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public report_stop ()	
Static	false
Leaf	false
Documentation	Stops reporting a variable. Sets window=period=0 and serializes de variable using SET command. The variable then not generate any other packet. This function then removes the callback from module.node.probeListener
Author	ismael
Create Date Time	Sep 18, 2012 10:48:18 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

package serialize (pkt : packet)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 13, 2012 11:03:03 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Serialize all attributes including value if size>0	
Author	ismael	
Create Date Time	Sep 13, 2012 10:30:12 PM	
Last Modified	Oct 8, 2012 11:20:37 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

package unserializeTo (pkt : packet, dest : serializable)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
	dest	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 serializable
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Save all attributes (including curValue if size>0) except initValue	
Author	ismael	
Create Date Time	Sep 14, 2012 1:49:55 PM	
Last Modified	Oct 8, 2012 11:20:37 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

Relationships

(*) : Generalization	
To	 nod_variable
Author	ismael
Create Date Time	Oct 9, 2012 11:50:48 AM
Last Modified	Oct 9, 2012 12:20:53 PM
Substitutable	false
Visibility	Unspecified

Unnamed Generalization	
From	 updateable
Author	ismael
Create Date Time	Oct 9, 2012 11:42:56 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified

Unnamed Generalization	
From	 serializable
Author	ismael
Create Date Time	Oct 9, 2012 11:43:00 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified

module_interface


Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	Data interface between modules.
Author	ismael
Create Date Time	Sep 17, 2012 8:38:51 PM
Last Modified	Oct 9, 2012 12:07:31 PM

Attributes


public id : int			
Documentation	Unique id in the waveform		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 5:49:12 PM		
Type	int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		


Aggregation	None
Derived Union	false
Read Only	false
Leaf	false


public bw_total_mbpts : float			
Documentation	interface bandwidth requirements in MBPTS		
Author	ismael		
Create Date Time	Sep 12, 2012 1:50:47 AM		
Last Modified	Oct 8, 2012 5:49:12 PM		
Type	float		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public bw_use_mbpts : float			
Documentation	Used bandwidth (in MBPTS). *NOTE*: Unlike module's ExecInfo, the interfaces are assumed to use constant bandwidth.		
Author	ismael		
Create Date Time	Sep 16, 2012 11:29:11 PM		
Last Modified	Oct 8, 2012 5:49:12 PM		
Type	 float		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public name : string	
Documentation	Name of the interface
Author	ismael


Create Date Time	Sep 17, 2012 8:38:59 PM		
Last Modified	Oct 8, 2012 5:49:12 PM		
Type	 string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public remoteltfName : string			
Author	ismael		
Create Date Time	Oct 2, 2012 12:07:15 PM		
Last Modified	Oct 8, 2012 5:49:12 PM		
Type	 string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public remoteObjName : string			
Author	ismael		
Create Date Time	Oct 2, 2012 12:07:24 PM		
Last Modified	Oct 8, 2012 5:49:12 PM		
Type	 string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public remoteltfld : int			
Author	ismael		
Create Date Time	Oct 2, 2012 12:08:48 PM		
Last Modified	Oct 8, 2012 5:49:12 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public remoteObjId : int			
Author	ismael		
Create Date Time	Oct 2, 2012 12:08:52 PM		
Last Modified	Oct 8, 2012 5:49:12 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public phyltfld : int			
Author	ismael		
Create Date Time	Oct 2, 2012 12:09:12 PM		
Last Modified	Oct 8, 2012 5:49:12 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		



public delay : int			
Documentation	Interface delay, in timeslots		
Author	ismael		
Create Date Time	Oct 2, 2012 12:51:38 PM		
Last Modified	Oct 8, 2012 5:49:12 PM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public active : boolean			
Author	ismael		
Create Date Time	Oct 2, 2012 1:08:09 PM		
Last Modified	Oct 8, 2012 5:49:12 PM		
Type	 boolean		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


Operations

package serialize (pkt : packet)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 13, 2012 11:03:03 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Copy all attributes	
Author	ismael	
Create Date Time	Sep 13, 2012 10:30:12 PM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

package unserializeTo (pkt : packet, dest : serializable)

Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
	dest	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 serializable
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Copy all attributes	
Author	ismael	
Create Date Time	Sep 14, 2012 1:49:55 PM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

Relationships


Unnamed Generalization	
From	 serializable
Author	ismael
Create Date Time	Oct 9, 2012 11:43:12 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified

nod_waveform



Name	Value
Active	false
Business Key Mutable	true

Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	Used by the node to save the loaded waveforms, its modules and variables. At LOAD command, the class is received and serializedTo() a free Waveform object instance. Then waveform attributes, modules and variables and all their attributes are created on pre-allocated objects instances.
Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 9, 2012 12:42:53 PM

Operations

package serialize (pkt : packet)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 13, 2012 11:03:03 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Save attributes (and status) and call waveform.moduleObj[i].serialize() for all modules	
Author	ismael	
Create Date Time	Sep 13, 2012 10:30:12 PM	
Last Modified	Oct 9, 2012 12:42:53 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

package unserializeTo (pkt : packet, dest : serializable)

Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
	dest	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 serializable
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Save attributes to the object instance and call waveform.moduleObj[i].unserializeTo() all nof_modules module instances	
Author	ismael	
Create Date Time	Sep 14, 2012 1:49:55 PM	
Last Modified	Oct 8, 2012 11:20:37 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

Relationships


(*) : Generalization	
From	 waveform
Author	ismael
Create Date Time	Oct 9, 2012 11:48:43 AM
Last Modified	Oct 9, 2012 12:20:53 PM
Substitutable	false
Visibility	Unspecified



Unnamed Generalization	
From	 serializable
Author	ismael
Create Date Time	Oct 9, 2012 11:49:46 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified

nod_waveform_status


Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Author	ismael
Create Date Time	Oct 9, 2012 11:54:26 AM
Last Modified	Oct 9, 2012 12:07:31 PM


Operations

package serialize (pkt : packet)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 13, 2012 11:03:03 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Copy all attributes	
Author	ismael	
Create Date Time	Sep 13, 2012 10:30:12 PM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

package unserializeTo (pkt : packet, dest : serializable)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
	dest	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 serializable
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	<p>This function is called when a new status change has been indicated. This unserialize function is a bit more complex, since it must ensure that the status has been changed successfully.</p> <p>1) Copy all attributes 2) call hwapi.sleepToTstamp(dead_tstamp) to sleep until dead_tstamp 3) when back, return OK if all modules have the correct status. Return ERR otherwise</p>	
Author	ismael	
Create Date Time	Sep 14, 2012 1:49:55 PM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

Relationships


(*) : Generalization	
From	 waveform_status
Author	ismael
Create Date Time	Oct 9, 2012 11:55:56 AM
Last Modified	Oct 9, 2012 12:20:53 PM
Substitutable	false
Visibility	Unspecified

Unnamed Generalization	
From	 serializable
Author	ismael
Create Date Time	Oct 9, 2012 11:56:02 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified



nod_module

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	Stores the attributes of waveform module.
Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 9, 2012 12:20:53 PM


Operations


package serialize (pkt : packet)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 13, 2012 11:03:03 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	

Leaf	false
Documentation	call module_serialize()
Author	ismael
Create Date Time	Sep 13, 2012 10:30:12 PM
Last Modified	Oct 9, 2012 12:20:53 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

package unserializeTo (pkt : packet, dest : serializable)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
	dest	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 serializable
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	call module_unserialize()	
Author	ismael	
Create Date Time	Sep 14, 2012 1:49:55 PM	
Last Modified	Oct 9, 2012 12:20:53 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

Relationships



(*) : Generalization	
From	 module
Author	ismael
Create Date Time	Oct 9, 2012 11:50:03 AM
Last Modified	Oct 9, 2012 12:20:53 PM
Substitutable	false
Visibility	Unspecified


Unnamed Generalization	
From	 serializable
Author	ismael
Create Date Time	Oct 9, 2012 11:50:06 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified

nod_module_execinfo



Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	The class attributes save information relative to the execution of the module.
Author	ismael
Create Date Time	Sep 12, 2012 1:50:47 AM
Last Modified	Oct 9, 2012 12:24:28 PM

Operations


package add_sample (cpu : int, relinquish : int)		
Parameters	cpu	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 9, 2012 12:21:06 PM
	Last Modified	Oct 9, 2012 12:24:28 PM
	Type	 int
	Direction	inout
	relinquish	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 9, 2012 12:21:06 PM
	Last Modified	Oct 9, 2012 12:24:28 PM
	Type	 int
	Direction	inout
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Oct 9, 2012 12:20:50 PM	
Last Modified	Oct 9, 2012 12:24:28 PM	
Ordered	false	
Unique	true	
Query	false	

package serialize (pkt : packet)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 13, 2012 11:03:03 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	- Save all attributes	
Author	ismael	
Create Date Time	Sep 13, 2012 10:30:12 PM	
Last Modified	Oct 8, 2012 11:20:37 AM	
Ordered	false	

Unique	true
Dotnet Code Detail	N/A
Query	false

package unserializeTo (pkt : packet, dest : serializable)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
	dest	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 serializable
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Do nothing	
Author	ismael	
Create Date Time	Sep 14, 2012 1:49:55 PM	
Last Modified	Oct 8, 2012 11:20:37 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

Relationships


(*) : Generalization	
From	 module_execinfo
Author	ismael
Create Date Time	Oct 9, 2012 11:52:54 AM
Last Modified	Oct 9, 2012 12:20:53 PM
Substitutable	false
Visibility	Unspecified


Unnamed Generalization	
From	 serializable
Author	ismael
Create Date Time	Oct 9, 2012 11:52:58 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified

nod_variable

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	<p>A module variable is a variable that can be viewed (get) or modified (set) by the CMDAPI or any other module of the same waveform. This interaction is always <i>*asynchronous*</i> and there is no guarantee in terms of timings.</p> <p>An initialization value can be defined for a variable. In that case, it is specified in the .app file and sent to the Nodes during the waveform load phase. The waveform modules can restore their variables to the initialization value any time.</p> <p>Those variables which are not specified in the .app are not available to the manager (i.e. there is any ModuleVariable object associated to the Module object) until the module calls the SWAPI.InitVariable() function and the manager calls the moduleObj.update() or waveformObj.update() functions. It is recommended that the modules initialize their variables during INIT() and the manager calls waveformObj.update() after a successful INIT.</p> <p>This class is used by ALOE-Node. The CMDAPI uses the CmdVariable, which inherits from this class.</p>
Author	ismael
Create Date Time	Sep 19, 2012 8:21:25 PM
Last Modified	Oct 9, 2012 12:20:53 PM


Attributes



package report_packet : packet			
Author	ismael		
Create Date Time	Oct 3, 2012 1:00:03 PM		
Last Modified	Oct 9, 2012 12:20:53 PM		
Type	 packet		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package shm_addr : void			
Documentation	Pointer to the shared memory region where the variable is stored.		
Author	ismael		
Create Date Time	Sep 14, 2012 2:40:19 PM		
Last Modified	Oct 9, 2012 12:20:53 PM		
Type Modifier	*		
Type	 void		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Operations


package serialize (pkt : packet)			
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Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 13, 2012 11:03:03 PM
	Last Modified	Oct 9, 2012 12:07:31 PM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Serialize all attributes including variable value (shmPtr) if size>0	
Author	ismael	
Create Date Time	Sep 13, 2012 10:30:12 PM	
Last Modified	Oct 9, 2012 12:07:31 PM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

package unserializeTo (pkt : packet, dest : serializable)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 9, 2012 12:07:31 PM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
	dest	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 9, 2012 12:07:31 PM
	Type	 serializable
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Save window and period attributes. If size>0, save variable value to shmPtr while checking size.	

	<p>If new window>0 and period>0, add the variable to module.reportingVariable and increase module.nof_report_vars clear the reportPacket and set periodCnt=0 If new window=0 and period=0, remove the variable to module.reportingVariable and decrease module.nof_report_vars</p>
Author	ismael
Create Date Time	Sep 14, 2012 1:49:55 PM
Last Modified	Oct 9, 2012 12:07:31 PM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

Relationships


(*) : Generalization	
From	 variable
Author	ismael
Create Date Time	Oct 9, 2012 11:50:48 AM
Last Modified	Oct 9, 2012 12:20:53 PM
Substitutable	false
Visibility	Unspecified



Unnamed Generalization	
From	 serializable
Author	ismael
Create Date Time	Oct 9, 2012 11:50:51 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified

serializable

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Stereotypes	Interface
Author	ismael
Create Date Time	Sep 13, 2012 9:53:42 PM
Last Modified	Oct 9, 2012 12:07:31 PM


Operations


package serialize (pkt : packet)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 13, 2012 11:03:03 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Sep 13, 2012 10:30:12 PM	
Last Modified	Oct 8, 2012 11:20:37 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


package unserializeTo (pkt : packet, dest : serializable)		
Parameters	pkt	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 packet
	Direction	inout
	Dotnet Code Detail	N/A
	dest	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 14, 2012 1:50:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 serializable
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation		
Author	ismael	
Create Date Time	Sep 14, 2012 1:49:55 PM	
Last Modified	Oct 8, 2012 11:20:37 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


Relationships

Unnamed Generalization	
To	 waveform
Author	ismael
Create Date Time	Oct 9, 2012 10:25:46 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified


Unnamed Generalization	
To	 module
Author	ismael
Create Date Time	Oct 9, 2012 11:41:35 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified


Unnamed Generalization	
To	 module_execinfo
Author	ismael
Create Date Time	Oct 9, 2012 11:41:44 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified


Unnamed Generalization	
To	 variable
Author	ismael
Create Date Time	Oct 9, 2012 11:43:00 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified


Unnamed Generalization	
To	 module_interface
Author	ismael
Create Date Time	Oct 9, 2012 11:43:12 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified


Unnamed Generalization	
To	 waveform_status
Author	ismael
Create Date Time	Oct 9, 2012 11:45:53 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified

Unnamed Generalization	
To	 nod_waveform
Author	ismael
Create Date Time	Oct 9, 2012 11:49:46 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified

Unnamed Generalization	
To	 nod_module
Author	ismael
Create Date Time	Oct 9, 2012 11:50:06 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified

Unnamed Generalization	
To	 nod_variable
Author	ismael
Create Date Time	Oct 9, 2012 11:50:51 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified

Unnamed Generalization	
To	 nod_module_execinfo
Author	ismael
Create Date Time	Oct 9, 2012 11:52:58 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified

Unnamed Generalization	
To	 nod_waveform_status
Author	ismael
Create Date Time	Oct 9, 2012 11:56:02 AM
Last Modified	Oct 9, 2012 12:07:31 PM
Substitutable	false
Visibility	Unspecified

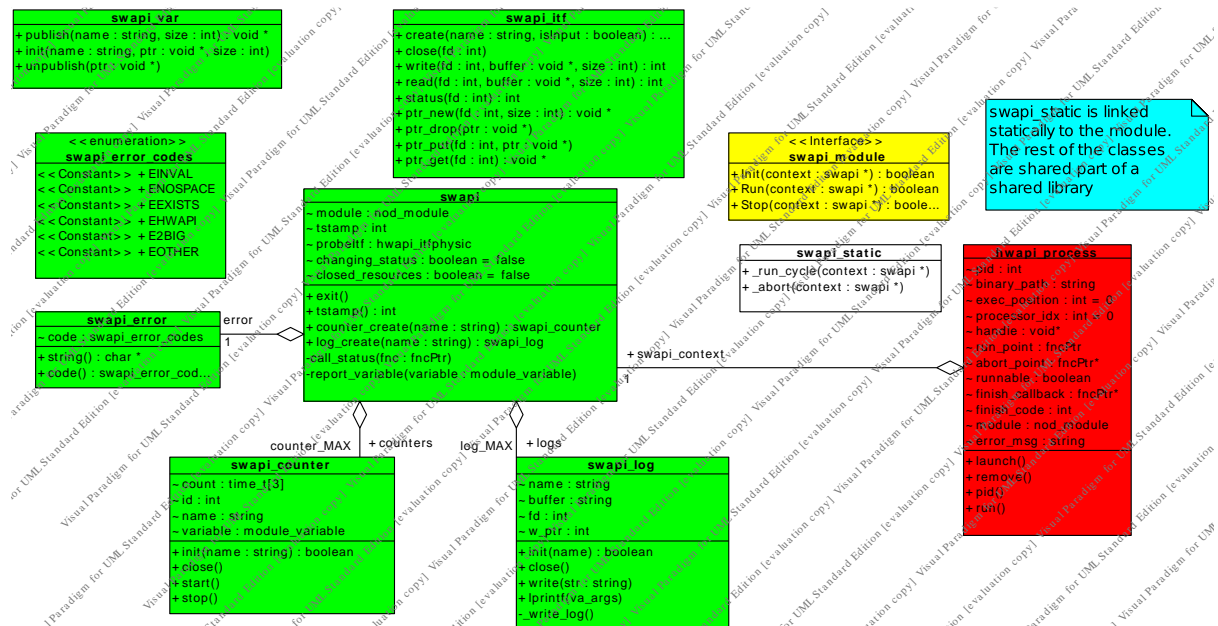
 **N/A**

Name	Value
------	-------

Documentation	(*) Only parent class ATTRIBUTES are inherited bt nod_* from *.
Author	ismael
Create Date Time	Oct 9, 2012 12:13:42 PM
Last Modified	Oct 9, 2012 12:24:28 PM

Class Diagram





swapi



Name	Value
Name	swapi
Author	ismael
Create Date Time	Oct 6, 2012 10:54:08 AM
Last Modified	Oct 9, 2012 1:07:17 PM

Summary

Name	Documentation
swapi_var	A non-instantiable class (no attributes). Just a collection of functions associated to variable management.
swapi_itf	A non-instantiable class (no attributes). Just a collection of functions associated to interface management.
swapi_error_codes	
swapi_module	
swapi	This is the module's interface to ALOE. It provides functions for creation of interfaces, global variables, pre-initialized values, log files and time counters. See swapi_module class for information on how to define a module.
swapi_static	This class has to be linked statically with any ALOE waveform module.
hwapi_process	A HWAPI Process is defined as dynamically loaded shared library with two symbols that *MUST* be defined: <ul style="list-style-type: none"> - _startup(arg0,arg1): This function is called at load-time and is not subject to real-time constraints. - _runCycle(): This function is called each time-slot and is subject to real-time constraints.

	It is used to load and execute signal processing waveform modules. The HWAPI.Process objects are instantiated by Base.initializeNode() function at boot. A call to create() loads the module into memory. A call to startup() calls the _startup() function and a call to places the _runCycle() function into the pipelined execution queue (see Proc-Thread class)
 swapi_error	
 swapi_counter	A Counter is a class used to count short periods of time in a timeslot execution cycle, for instance, to measure the execution time of some parts of the code. It is associated with a public variable the name passed to the create() function. After a call to Stop(), the number of microseconds elapsed since the previous call to Start() is saved in the variable.
 swapi_log	A Log is a mechanism for the module to write text to a logfile without interrupting real-time processing. Successive calls to Log() or Write() functions store the string in a temporal buffer. At the end of the timeslot, a new thread with lower priority is created to write the contents a non-volatile media provided by the hwapi (e.g. a hard-drive or flash-rom). Note that it may happen that the contents are never written, in the case that the processor is 100% of its time running signal processing tasks.
 N/A	swapi_static is linked statically to the module. The rest of the classes are shared part of a shared library



Details

swapi_var




Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	A non-instantiable class (no attributes). Just a collection of functions associated to variable management.
Author	ismael
Create Date Time	Oct 6, 2012 10:59:27 AM
Last Modified	Oct 8, 2012 12:39:02 AM


Operations

```
public publish (name : string, size : int) : void
```


Parameters	name	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 7:47:07 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 string
	Direction	inout
	Dotnet Code Detail	N/A
	size	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 7:47:07 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	<p>Declares a module variable as "public". Then other modules or the manager can view and modify it.</p> <p>1) Find if variable name exists in mymodule.variables, otherwise find an empty space and fill attributes 2) call hwapi.openShm() to create a shared memory area for the variable. Save pointer in the variable object found in previous step 3) If all ok, return the shared memory pointer, otherwise return null</p>	
Author	ismael	
Create Date Time	Sep 17, 2012 7:46:17 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Type Modifier	*	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

public init (name : string, ptr : void, size : int)



Parameters	name	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 2, 2012 1:02:29 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 string
	Direction	inout
	Dotnet Code Detail	N/A
	ptr	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 7:46:17 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	 void
	Direction	inout
	Dotnet Code Detail	N/A
	size	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 2, 2012 1:02:29 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	<p>Sets the initialization value of a variable to the buffer pointed by ptr</p> <p>1) find a variable in mymodule.variables with mymodule.variables[i].name=name 2) copy min(size,mymodule.variables[i].size) bytes of mymodule.variables[i].initValue to ptr</p>	
Author	ismael	
Create Date Time	Sep 17, 2012 7:45:45 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

public unpublish (ptr : void)		
Parameters	ptr	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 7:47:43 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	 void
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	<p>Declares a public variable "private" so that any other module or the manager can modify it</p> <p>1) Find a variable in mymodule.variables with mymodule.variables[i].shmPtr=ptr 2) clear mymodule.variables[i] attributes 3) call hwapi.closeShm(ptr);</p>	
Author	ismael	
Create Date Time	Sep 17, 2012 7:47:29 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


swapi_itf

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	A non-instantiable class (no attributes). Just a collection of functions associated to interface management.
Author	ismael
Create Date Time	Oct 6, 2012 10:56:28 AM
Last Modified	Oct 8, 2012 12:39:02 AM




Operations

public create (name : string, isInput : boolean) : int		
Parameters	name	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 7:44:38 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 string
	Direction	inout
	Dotnet Code Detail	N/A
	isInput	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 7:44:38 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 boolean
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	<p>Creates an logical module interfaces. If the interface is extenal, an object of the class HWAPI.Physicltf is created, otherwise HWAPI.Queue is created.</p> <p>1) Find interface name in mymodule.interfaces. The mymodule.interfaces[i].id will be returned as the file descriptor if everything goes ok</p> <p>2) if mymodule.interface[i].phyltfld>0 the interface is external 2.1) find in hwapi.interfaces an interface with id=phyltfld (do not create, it is already created and connected)</p> <p>3) if interface is internal 3.1) if mode=OUTPUT, create an interface of class HWAPI.Queue with address="" and name="%d:%d:%d:%d" <- writerObjId:writerItfId:readerObjId:readerItfId 3.2) if mode=INPUT, find in hwapi.interfaces an interface with name="%d:%d:%d:%d" <- writerObjId:writerItfId:readerObjId:readerItfId</p> <p>4) Set interface delay using setDelay()</p> <p>5) set mymodule.interface[i].active=TRUE</p>	
Author	ismael	
Create Date Time	Sep 17, 2012 7:44:17 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	




Query	false
-------	-------

public close (fd : int)		
Parameters	fd	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 7:47:29 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Closes the interface and frees activeInterfaces. Only internal writer interfaces have to call removeItf	
Author	ismael	
Create Date Time	Sep 17, 2012 7:47:21 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


public write (fd : int, buffer : void, size : int) : int
--



Parameters	fd	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 7:45:10 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
	buffer	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 7:45:10 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	 void
	Direction	inout
	Dotnet Code Detail	N/A
	size	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 7:45:10 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	call activeInterface[fd].send() with same arguments.	
Author	ismael	
Create Date Time	Sep 17, 2012 7:44:38 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

```
public read (fd : int, buffer : void, size : int) : int
```


Parameters	fd	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 7:45:28 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
	buffer	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 7:45:28 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	 void
	Direction	inout
	Dotnet Code Detail	N/A
	size	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 7:45:28 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	call activeInterface[fd].recv() with same arguments.	
Author	ismael	
Create Date Time	Sep 17, 2012 7:45:10 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

public status (fd : int) : int



Parameters	fd	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 7:45:40 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	returns the number of bytes in the queue	
Author	ismael	
Create Date Time	Sep 17, 2012 7:45:31 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


public ptr_new (fd : int, size : int) : void		
Parameters	fd	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 7:50:11 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
	size	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 7:50:11 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	call activeInterface[fd].requestPtr() with same arguments.	
Author	ismael	
Create Date Time	Sep 17, 2012 7:49:39 PM	

Last Modified	Oct 8, 2012 12:33:16 AM
Type Modifier	*
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public ptr_drop (ptr : void)		
Parameters	ptr	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 2, 2012 12:34:11 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	 void
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	call activeInterface[fd].releasePtr() with same arguments.	
Author	ismael	
Create Date Time	Oct 2, 2012 12:34:01 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

public ptr_put (fd : int, ptr : void)

Parameters	fd	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 7:51:50 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
	ptr	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 7:52:06 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	 void
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	call activeInterface[fd].putPtr() with same arguments.	
Author	ismael	
Create Date Time	Sep 17, 2012 7:51:41 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

public ptr_get (fd : int) : void		
Parameters	fd	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 7:52:18 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 int
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	call activeInterface[fd].getPtr() with same arguments.	
Author	ismael	

Create Date Time	Sep 17, 2012 7:52:07 PM
Last Modified	Oct 8, 2012 12:33:16 AM
Type Modifier	*
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

swapi_error_codes

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Stereotypes	enumeration
Author	ismael
Create Date Time	Oct 7, 2012 1:49:14 PM
Last Modified	Oct 8, 2012 10:47:05 AM

Attributes

public EINVAL			
Stereotypes	Constant		
Author	ismael		
Create Date Time	Oct 7, 2012 1:49:43 PM		
Last Modified	Oct 8, 2012 10:47:05 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public ENOSPACE			
Stereotypes	Constant		
Author	ismael		
Create Date Time	Oct 7, 2012 1:49:46 PM		
Last Modified	Oct 8, 2012 10:47:05 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public EEXISTS			
Stereotypes	Constant		
Author	ismael		
Create Date Time	Oct 7, 2012 1:49:48 PM		
Last Modified	Oct 8, 2012 10:47:05 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public EHWAPI			
Stereotypes	Constant		
Author	ismael		
Create Date Time	Oct 7, 2012 1:49:50 PM		
Last Modified	Oct 8, 2012 10:47:05 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


public E2BIG			
Stereotypes	Constant		
Author	ismael		
Create Date Time	Oct 7, 2012 1:49:52 PM		
Last Modified	Oct 8, 2012 10:47:05 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

public EOTHER			
Stereotypes	Constant		
Author	ismael		
Create Date Time	Oct 7, 2012 1:49:55 PM		
Last Modified	Oct 8, 2012 10:47:05 AM		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

swapi_module


Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Stereotypes	Interface
Author	ismael
Create Date Time	Oct 7, 2012 1:53:43 PM
Last Modified	Oct 8, 2012 1:32:14 PM

Operations


public Init (context : swapi) : boolean		
Parameters	context	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 7, 2012 12:53:06 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	 swapi
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	

Documentation	Function called once during the INIT status. It creates the interfaces, variables and initializes parameters.
Author	ismael
Create Date Time	Oct 3, 2012 11:34:45 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public Run (context : swapi) : boolean

Parameters	context	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 7, 2012 1:35:30 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	 swapi
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Function called each time-slot during the RUN status. It runs the SP algorithms.	
Author	ismael	
Create Date Time	Oct 3, 2012 11:34:32 AM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

public Stop (context : swapi) : boolean


Parameters	context	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 7, 2012 1:36:12 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	 swapi
	Direction	inout
	Dotnet Code Detail	N/A


Static	false
Leaf	false
Documentation	Function called once during the STOP status. Closes all opened resources and calls swapi.Exit().
Author	ismael
Create Date Time	Oct 3, 2012 11:34:42 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


swapi


Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	This is the module's interface to ALOE. It provides functions for creation of interfaces, global variables, pre-initialized values, log files and time counters. See swapi_module class for information on how to define a module.
Author	ismael
Create Date Time	Sep 17, 2012 12:52:20 AM
Last Modified	Oct 8, 2012 12:11:32 PM


Attributes

package module : nod_module			
Author	ismael		
Create Date Time	Sep 18, 2012 9:54:02 AM		
Last Modified	Oct 8, 2012 11:30:37 AM		
Type	 nod_module		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package tstamp : int			
Author	ismael		
Create Date Time	Oct 2, 2012 12:53:18 PM		
Last Modified	Oct 8, 2012 10:47:05 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package probeltf : hwapi_itfphysic			
Author	ismael		
Create Date Time	Oct 3, 2012 11:23:51 AM		
Last Modified	Oct 8, 2012 12:11:32 PM		
Type	 hwapi_itfphysic		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package changing_status : boolean			
Author	ismael		
Create Date Time	Oct 3, 2012 11:34:19 AM		
Last Modified	Oct 8, 2012 10:47:05 AM		
Initial Value	false		
Type	 boolean		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


package closed_resources : boolean			
Author	ismael		
Create Date Time	Oct 3, 2012 8:46:24 PM		
Last Modified	Oct 8, 2012 10:47:05 AM		
Initial Value	false		
Type	 boolean		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


Operations

public exit ()	
Static	false
Leaf	false
Documentation	This function is called by the sStop() function and the _abort() functions. It removes the module from the execution pipeline in ProcThread. The next timeslot the module won't be executed.
Author	ismael
Create Date Time	Oct 3, 2012 8:53:03 PM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public tstamp () : int	
Static	false
Leaf	false
Documentation	Returns the module's timestamp. This is the number of timeslots that the object has executed the INIT an RUN states. This function is always successful.
Author	ismael
Create Date Time	Sep 17, 2012 7:45:40 PM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true


Dotnet Code Detail	N/A
Query	false

public counter_create (name : string) : swapi_counter		
Parameters	name	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 7:48:30 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 string
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	1) Find an empty space in +counters 2) call counters[i].create(name) 3) return &counters[i]	
Author	ismael	
Create Date Time	Sep 17, 2012 7:48:12 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

public log_create (name : string) : swapi_log		
Parameters	name	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 3, 2012 8:51:36 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 string
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	1) Find an empty space in +logs 2) call logs[i].create(name) 3) return &logs[i]	
Author	ismael	
Create Date Time	Oct 3, 2012 8:51:29 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	


Unique	true
Dotnet Code Detail	N/A
Query	false


private call_status (fnc : fncPtr)		
Parameters	fnc	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 3, 2012 12:38:51 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	fncPtr
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	wrapper to the module's skeleton new state function.	
Author	ismael	
Create Date Time	Oct 3, 2012 12:38:26 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


private report_variable (variable : module_variable)		
Parameters	variable	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 3, 2012 12:39:07 PM
	Last Modified	Oct 8, 2012 11:30:37 AM
	Type	 module_variable
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Use the probeltf to send the variable.reportPacket to the manager	
Author	ismael	
Create Date Time	Oct 3, 2012 12:38:51 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	


Dotnet Code Detail	N/A
Query	false

Relationships

Unnamed Association		
To (counters)	Name	Value
	End Model Element	 swapi_counter
	Author	ismael
	Create Date Time	Oct 6, 2012 2:48:27 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	counter_MAX
	Visibility	public
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 2:48:27 PM	
Last Modified	Oct 7, 2012 1:49:03 PM	
Derived	false	

Unnamed Association		
To (logs)	Name	Value
	End Model Element	 swapi_log
	Author	ismael
	Create Date Time	Oct 6, 2012 2:48:32 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	log_MAX
	Visibility	public
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 2:48:32 PM	
Last Modified	Oct 7, 2012 1:49:03 PM	
Derived	false	


Unnamed Association		
To (error)	Name	Value
	End Model Element	 swapi_error
	Author	ismael
	Create Date Time	Oct 7, 2012 1:50:22 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 7, 2012 1:50:22 PM	
Last Modified	Oct 8, 2012 12:39:02 AM	
Derived	false	


Unnamed Association		
From	Name	Value
	End Model Element	 hwapi_process
	Author	ismael
	Create Date Time	Oct 6, 2012 3:19:41 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 3:19:41 PM	
Last Modified	Oct 7, 2012 1:49:03 PM	
Derived	false	

swapi_static

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	This class has to be linked statically with any ALOE waveform module.
Author	ismael
Create Date Time	Oct 6, 2012 3:17:13 PM
Last Modified	Oct 8, 2012 12:39:02 AM

Operations

public _run_cycle (context : swapi)		
Parameters	context	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 6, 2012 3:03:32 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	 swapi
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	<p>This is an internal SWAPI function, called by the hwapi_processs each timeslot. It does not follow the public method naming convention.</p> <p>This function manages the status state machine, computes execution time statistics, writes log files and produces variable reports. The status STOP and INIT are executed only once in non real-time priority.</p>	
Author	ismael	
Create Date Time	Oct 2, 2012 11:01:28 AM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	


public _abort (context : swapi)		
Parameters	context	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 6, 2012 3:04:56 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type Modifier	*
	Type	 swapi
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	called from the kernel or the swapi due to some error. Set mymodule.status=STOP and call sStop()	
Author	ismael	
Create Date Time	Oct 3, 2012 8:38:13 PM	


Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


hwapi_process

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	<p>A HWAPI Process is defined as dynamically loaded shared library with two symbols that *MUST* be defined:</p> <ul style="list-style-type: none"> - <code>_startup(arg0,arg1)</code>: This function is called at load-time and is not subject to real-time constraints. - <code>_runCycle()</code>: This function is called each time-slot and is subject to real-time constraints. <p>It is used to load and execute signal processing waveform modules.</p> <p>The HWAPI.Process objects are instantiated by <code>Base.initializeNode()</code> function at boot. A call to <code>create()</code> loads the module into memory. A call to <code>startup()</code> calls the <code>_startup()</code> function and a call to places the <code>_runCycle()</code> function into the pipelined execution queue (see Proc-Thread class)</p>
Author	ismael
Create Date Time	Sep 18, 2012 1:00:28 AM
Last Modified	Oct 8, 2012 11:30:37 AM


Attributes


package pid : int			
Author	ismael		
Create Date Time	Sep 18, 2012 1:27:24 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package binary_path : string			
Documentation	Path to the process binary program code. It can be a program or dynamic library, depending on the platform (dynamic library in linux).		
Author	ismael		
Create Date Time	Sep 18, 2012 1:27:33 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	 string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package exec_position : int			
Documentation	Execution position in the pipeline.		
Author	ismael		
Create Date Time	Sep 18, 2012 1:27:52 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Initial Value	0		
Type	 int		
Allow Empty Name	false		


Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package processor_idx : int			
Author	ismael		
Create Date Time	Sep 24, 2012 12:09:06 PM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Initial Value	0		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


package handle : void			
Author	ismael		
Create Date Time	Oct 2, 2012 10:11:38 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type Modifier	*		
Type	 void		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


package run_point : fncPtr			
Author	ismael		
Create Date Time	Oct 3, 2012 11:50:23 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	fncPtr		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


package abort_point : fncPtr			
Author	ismael		
Create Date Time	Oct 3, 2012 9:08:23 PM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type Modifier	*		
Type	fncPtr		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package runnable : boolean			
Author	ismael		
Create Date Time	Oct 3, 2012 9:33:02 PM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	 boolean		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package finish_callback : fncPtr			
Author	ismael		
Create Date Time	Oct 4, 2012 1:28:56 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type Modifier	*		
Type	fncPtr		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package finish_code : int			
Author	ismael		
Create Date Time	Oct 4, 2012 1:30:40 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package module : nod_module			
Author	ismael		
Create Date Time	Oct 4, 2012 1:34:46 AM		
Last Modified	Oct 8, 2012 11:30:37 AM		
Type	 nod_module		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package error_msg : string			
Author	ismael		
Create Date Time	Oct 4, 2012 9:12:10 AM		
Last Modified	Oct 8, 2012 10:44:21 AM		
Type	 string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Operations

public launch ()	
Static	false
Leaf	false
Documentation	<p>Loads the library into memory and prepares its execution.</p> <ol style="list-style-type: none"> 1) If pid>0, the slot is already in use, return error 2) Generate a new pid 3) handle=dlopen(binary_path, RTDL_NOW); to dynamically load the shared library. 4) run_point=dlsym(handle, _run_cycle); 5) start_point=dlsym(handle, _abort); 6) save pointer to allocated pipeline: self->pipeline=hwapi->pipelines[self->processor_idx];
Author	ismael
Create Date Time	Sep 17, 2012 1:01:44 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


public remove ()	
Static	false
Leaf	false
Documentation	<ol style="list-style-type: none"> 1) Call hwapi_pipeline_remove(self->pipeline,self); 2) Call to dlclose(handle) 3) Set pid=0 4) if finishCallback!=null, call the function
Author	ismael

Create Date Time	Sep 17, 2012 1:06:53 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public pid ()	
Static	false
Leaf	false
Documentation	Returns the process id.
Author	ismael
Create Date Time	Sep 24, 2012 11:43:33 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public run ()	
Static	false
Leaf	false
Documentation	Adds the process to the pipeline queue of the corresponding pipeline object, that is hwapi_pipeline_add(self->pipeline,self)
Author	ismael
Create Date Time	Oct 3, 2012 11:44:41 AM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


Relationships

Unnamed Association		
To (swapi_context)	Name	Value
	End Model Element	 swapi
	Author	ismael
	Create Date Time	Oct 6, 2012 3:19:41 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	1
	Visibility	public
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 3:19:41 PM	
Last Modified	Oct 7, 2012 1:49:03 PM	
Derived	false	

swapi_error

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Author	ismael
Create Date Time	Oct 7, 2012 1:50:05 PM
Last Modified	Oct 8, 2012 10:47:05 AM

Attributes


package code : swapi_error_codes			
Author	ismael		
Create Date Time	Oct 7, 2012 1:50:50 PM		
Last Modified	Oct 8, 2012 10:47:05 AM		
Type	 swapi_error_codes		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Operations

public string () : char	
Static	false
Leaf	false
Author	ismael
Create Date Time	Oct 7, 2012 1:50:42 PM
Last Modified	Oct 8, 2012 12:33:16 AM
Type Modifier	*
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public code () : swapi_error_codes	
Static	false
Leaf	false
Author	ismael
Create Date Time	Oct 7, 2012 1:50:45 PM
Last Modified	Oct 8, 2012 10:47:05 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

Relationships

Unnamed Association		
From	Name	Value
	End Model Element	 swapi
	Author	ismael
	Create Date Time	Oct 7, 2012 1:50:22 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 7, 2012 1:50:22 PM	
Last Modified	Oct 8, 2012 12:39:02 AM	
Derived	false	


swapi_counter


Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false
Root	false
Documentation	A Counter is a class used to count short periods of time in a timeslot execution cycle, for instance, to measure the execution time of some parts of the code. It is associated with a public variable the name passed to the create() function. After a call to Stop(), the number of microseconds elapsed since the previous call to Start() is saved in the variable.
Author	ismael


Create Date Time	Oct 2, 2012 1:11:54 PM
Last Modified	Oct 8, 2012 11:30:37 AM

Attributes


package count : time_t			
Author	ismael		
Create Date Time	Oct 2, 2012 1:16:03 PM		
Last Modified	Oct 8, 2012 10:47:05 AM		
Type Modifier	[3]		
Type	time_t		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package id : int			
Author	ismael		
Create Date Time	Oct 2, 2012 1:16:25 PM		
Last Modified	Oct 8, 2012 10:47:05 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package name : string			
Author	ismael		
Create Date Time	Oct 2, 2012 1:16:43 PM		
Last Modified	Oct 8, 2012 10:47:05 AM		
Type	 string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package variable : module_variable			
Author	ismael		
Create Date Time	Oct 2, 2012 1:17:36 PM		
Last Modified	Oct 8, 2012 11:30:37 AM		
Type	 module_variable		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Operations

public init (name : string) : boolean		
Parameters	name	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 2, 2012 1:18:30 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 string
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	

Documentation	1) save name 2) find a free ModuleVariable in mymodule and fill attributes 3) call hwapi.openShm() 4) save pointer to shmPtr
Author	ismael
Create Date Time	Oct 2, 2012 1:18:22 PM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


public close ()	
Static	false
Leaf	false
Documentation	Releases the variable's shared memory and frees the ModuleVariable object
Author	ismael
Create Date Time	Sep 17, 2012 7:48:30 PM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public start ()	
Static	false
Leaf	false
Documentation	Starts counting time
Author	ismael
Create Date Time	Sep 17, 2012 7:48:37 PM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public stop ()	
Static	false
Leaf	false
Documentation	Stops counting time and saves the elapsed microseconds in the variable.
Author	ismael

Create Date Time	Sep 17, 2012 7:48:42 PM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

Relationships


Unnamed Association		
From	Name	Value
	End Model Element	 swapi
	Author	ismael
	Create Date Time	Oct 6, 2012 2:48:27 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 2:48:27 PM	
Last Modified	Oct 7, 2012 1:49:03 PM	
Derived	false	


swapi_log


Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Leaf	false


Root	false
Documentation	A Log is a mechanism for the module to write text to a logfile without interrupting real-time processing. Successive calls to Log() or Write() functions store the string in a temporal buffer. At the end of the timeslot, a new thread with lower priority is created to write the contents a non-volatile media provided by the hwapi (e.g. a hard-drive or flash-rom). Note that it may happen that the contents are never written, in the case that the processor is 100% of its time running signal processing tasks.
Author	ismael
Create Date Time	Oct 2, 2012 1:11:55 PM
Last Modified	Oct 8, 2012 10:47:05 AM

Attributes

package name : string			
Author	ismael		
Create Date Time	Oct 3, 2012 12:19:36 PM		
Last Modified	Oct 8, 2012 10:47:05 AM		
Type	 string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package buffer : string			
Author	ismael		
Create Date Time	Oct 3, 2012 12:19:44 PM		
Last Modified	Oct 8, 2012 10:47:05 AM		
Type	 string		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		


package fd : int			
Author	ismael		
Create Date Time	Oct 3, 2012 12:20:33 PM		
Last Modified	Oct 8, 2012 10:47:05 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

package w_ptr : int			
Author	ismael		
Create Date Time	Oct 3, 2012 12:26:42 PM		
Last Modified	Oct 8, 2012 10:47:05 AM		
Type	 int		
Allow Empty Name	false		
Getter	false	Setter	false
Derived	false		
Multiplicity	Unspecified		
Dotnet Code Detail	N/A		
Aggregation	None		
Derived Union	false		
Read Only	false		
Leaf	false		

Operations

public init (name) : boolean		
Parameters	name	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 3, 2012 12:21:40 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Author	ismael	
Create Date Time	Sep 17, 2012 7:48:47 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

public close ()	
Static	false
Leaf	false
Author	ismael
Create Date Time	Sep 17, 2012 7:49:01 PM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false


public write (str : string)		
Parameters	str	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Sep 17, 2012 7:49:26 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Type	 string
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Concatenates the string to buffer	

Author	ismael
Create Date Time	Sep 17, 2012 7:49:17 PM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

public Iprintf (va_args)		
Parameters	va_args	
	Multiplicity	Unspecified
	Author	ismael
	Create Date Time	Oct 3, 2012 12:22:19 PM
	Last Modified	Oct 8, 2012 12:33:16 AM
	Direction	inout
	Dotnet Code Detail	N/A
Static	false	
Leaf	false	
Documentation	Use sprintf to format string and concatenates to buffer	
Author	ismael	
Create Date Time	Oct 3, 2012 12:22:09 PM	
Last Modified	Oct 8, 2012 12:33:16 AM	
Ordered	false	
Unique	true	
Dotnet Code Detail	N/A	
Query	false	

private _write_log ()	
Static	false
Leaf	false
Documentation	Writes the contents of the buffer. Called by runCycle at the end of the timeslot.
Author	ismael
Create Date Time	Oct 3, 2012 12:22:19 PM
Last Modified	Oct 8, 2012 12:33:16 AM
Ordered	false
Unique	true
Dotnet Code Detail	N/A
Query	false

Relationships

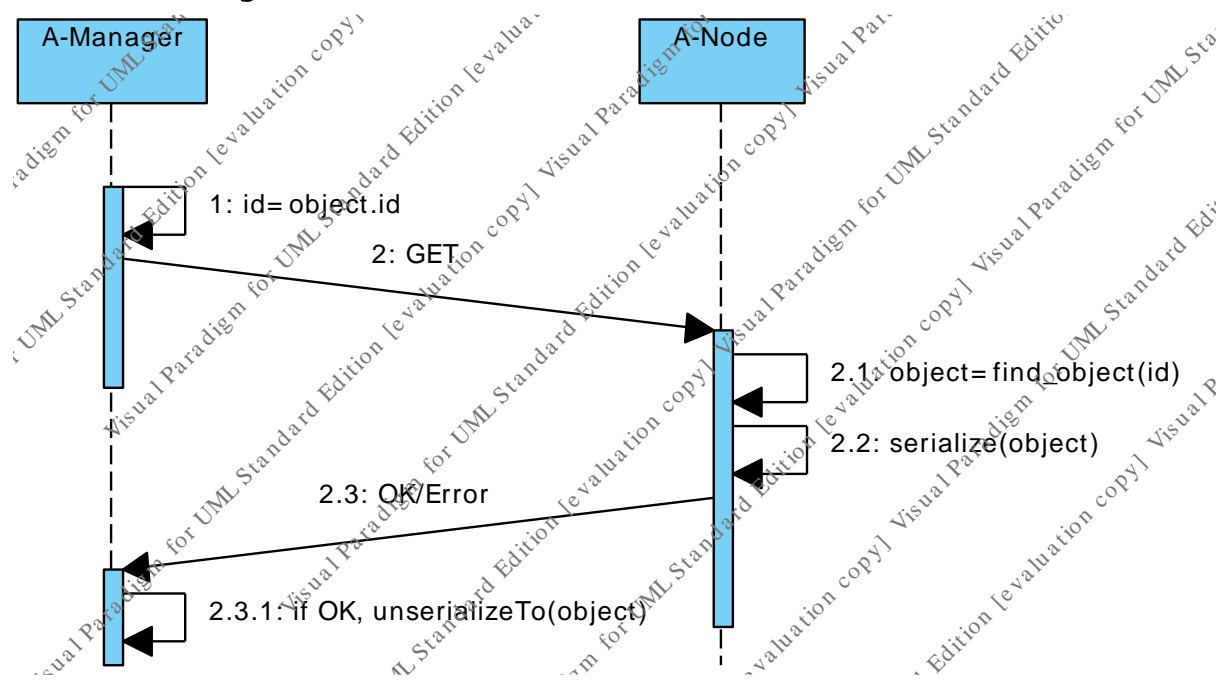
Unnamed Association		
From	Name	Value
	End Model Element	 swapi
	Author	ismael
	Create Date Time	Oct 6, 2012 2:48:32 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	Aggregation
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 6, 2012 2:48:32 PM	
Last Modified	Oct 7, 2012 1:49:03 PM	
Derived	false	

 **N/A**

Name	Value
Documentation	swapi_static is linked statically to the module. The rest of the classes are shared part of a shared library
Author	ismael
Create Date Time	Oct 6, 2012 3:20:07 PM
Last Modified	Oct 7, 2012 1:02:55 PM

Sequence Diagram

GET object



Name	Value
Name	GET object
Author	ismael
Create Date Time	Oct 5, 2012 12:45:42 PM
Last Modified	Oct 5, 2012 3:49:13 PM

Summary


Name	Documentation
A-Manager	
A-Node	


Details


A-Manager


Name	Value
Author	ismael
Create Date Time	Oct 5, 2012 12:45:49 PM
Last Modified	Oct 5, 2012 12:51:52 PM
Multiplicity	Unspecified
Active	false
Stopped	false
Multi Object	false

Relationships

id=object.id : Message		
To	Name	Value
	End Model Element	 A-Manager
	Author	ismael
	Create Date Time	Oct 5, 2012 12:46:21 PM
Author	ismael	
Create Date Time	Oct 5, 2012 12:46:21 PM	
Last Modified	Oct 5, 2012 12:51:52 PM	
Type	Self Message	
Sequence Number	1	
Asynchronous	false	

GET : Message		
To	Name	Value
	End Model Element	 A-Node
	Author	ismael
	Create Date Time	Oct 5, 2012 12:46:30 PM
Author	ismael	
Create Date Time	Oct 5, 2012 12:46:30 PM	
Last Modified	Oct 5, 2012 12:51:52 PM	
Type	Duration Message	
Sequence Number	2	
Asynchronous	false	

if OK, unserializeTo(object) : Message		
To	Name	Value
	End Model Element	 A-Manager
	Author	ismael
	Create Date Time	Oct 5, 2012 12:47:18 PM
Author	ismael	
Create Date Time	Oct 5, 2012 12:47:18 PM	
Last Modified	Oct 5, 2012 12:51:52 PM	
Type	Self Message	
Sequence Number	2.3.1	
Asynchronous	false	


OK/Error : Message		
From	Name	Value
	End Model Element	 A-Node
	Author	ismael
	Create Date Time	Oct 5, 2012 12:47:07 PM
Author	ismael	
Create Date Time	Oct 5, 2012 12:47:07 PM	
Last Modified	Oct 5, 2012 12:51:52 PM	
Type	Duration Message	
Sequence Number	2.3	
Asynchronous	false	





A-Node


Name	Value
Author	ismael
Create Date Time	Oct 5, 2012 12:45:52 PM
Last Modified	Oct 5, 2012 12:51:52 PM
Multiplicity	Unspecified
Active	false
Stopped	false
Multi Object	false

Relationships

serialize(object) : Message		
To	Name	Value
	End Model Element	 A-Node
	Author	ismael
	Create Date Time	Oct 5, 2012 12:46:57 PM
Author	ismael	
Create Date Time	Oct 5, 2012 12:46:57 PM	
Last Modified	Oct 5, 2012 12:51:52 PM	
Type	Self Message	
Sequence Number	2.2	
Asynchronous	false	

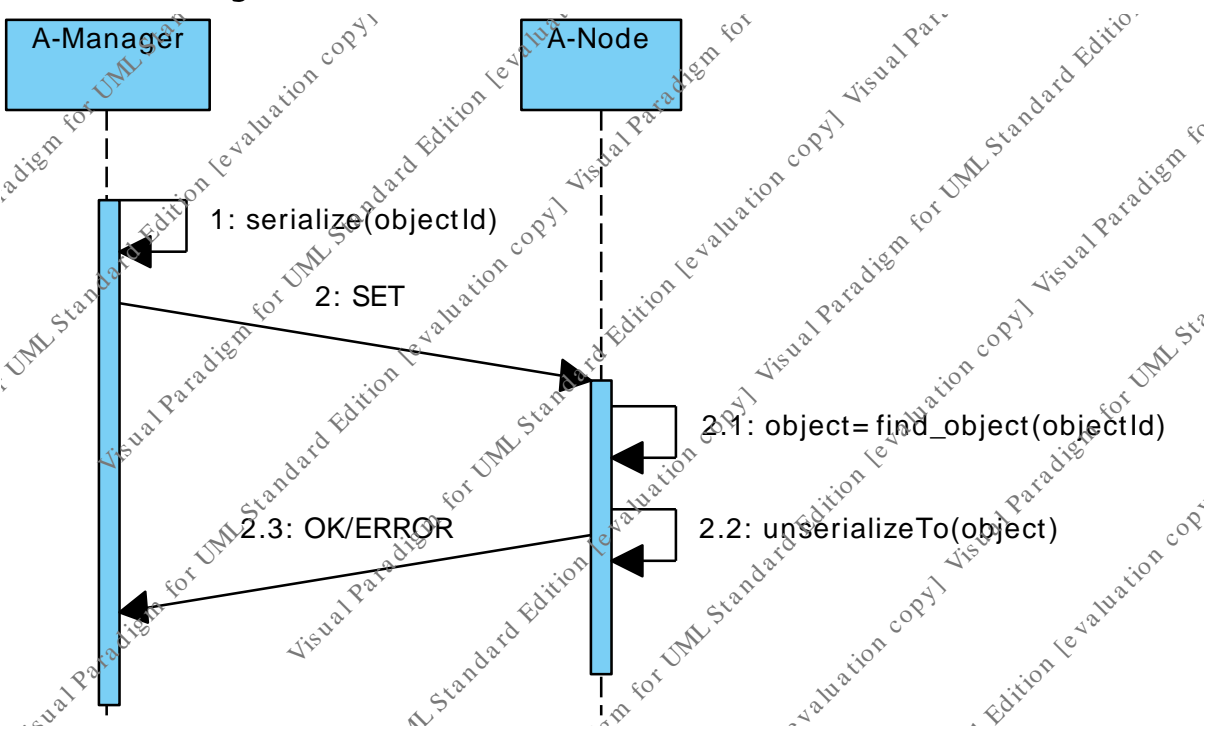
object=find_object(id) : Message		
To	Name	Value
	End Model Element	 A-Node
	Author	ismael
	Create Date Time	Oct 5, 2012 12:46:40 PM
Author	ismael	
Create Date Time	Oct 5, 2012 12:46:40 PM	
Last Modified	Oct 5, 2012 12:51:52 PM	
Type	Self Message	
Sequence Number	2.1	
Asynchronous	false	

OK/Error : Message		
To	Name	Value
	End Model Element	 A-Manager
	Author	ismael
	Create Date Time	Oct 5, 2012 12:47:07 PM
Author	ismael	
Create Date Time	Oct 5, 2012 12:47:07 PM	
Last Modified	Oct 5, 2012 12:51:52 PM	
Type	Duration Message	
Sequence Number	2.3	
Asynchronous	false	

GET : Message		
From	Name	Value
	End Model Element	 A-Manager
	Author	ismael
	Create Date Time	Oct 5, 2012 12:46:30 PM
Author	ismael	
Create Date Time	Oct 5, 2012 12:46:30 PM	
Last Modified	Oct 5, 2012 12:51:52 PM	
Type	Duration Message	
Sequence Number	2	
Asynchronous	false	

Sequence Diagram

SET Object



Name	Value
Name	SET Object
Author	ismael
Create Date Time	Oct 5, 2012 12:39:09 PM
Last Modified	Oct 5, 2012 3:49:15 PM

Summary


Name	Documentation
A-Manager	
A-Node	


Details


A-Manager

Name	Value
Author	ismael
Create Date Time	Oct 5, 2012 12:39:18 PM
Last Modified	Oct 5, 2012 12:51:52 PM
Multiplicity	Unspecified
Active	false
Stopped	false
Multi Object	false

Relationships

serialize(objectId) : Message		
To	Name	Value
	End Model Element	 A-Manager
	Author	ismael
	Create Date Time	Oct 5, 2012 12:40:13 PM
Author	ismael	
Create Date Time	Oct 5, 2012 12:40:13 PM	
Last Modified	Oct 5, 2012 12:51:52 PM	
Type	Self Message	
Sequence Number	1	
Asynchronous	false	

SET : Message		
To	Name	Value
	End Model Element	 A-Node
	Author	ismael
	Create Date Time	Oct 5, 2012 12:40:35 PM
Author	ismael	
Create Date Time	Oct 5, 2012 12:40:35 PM	
Last Modified	Oct 5, 2012 12:51:52 PM	
Type	Duration Message	
Sequence Number	2	
Asynchronous	false	


OK/ERROR : Message		
From	Name	Value
	End Model Element	 A-Node
	Author	ismael
	Create Date Time	Oct 5, 2012 12:42:10 PM
Author	ismael	
Create Date Time	Oct 5, 2012 12:42:10 PM	
Last Modified	Oct 5, 2012 12:51:52 PM	
Type	Duration Message	
Sequence Number	2.3	
Asynchronous	false	





A-Node


Name	Value
Author	ismael
Create Date Time	Oct 5, 2012 12:39:25 PM
Last Modified	Oct 5, 2012 12:51:52 PM
Multiplicity	Unspecified
Active	false
Stopped	false
Multi Object	false

Relationships

object=find_object(objectId) : Message		
To	Name	Value
	End Model Element	 A-Node
	Author	ismael
	Create Date Time	Oct 5, 2012 12:41:56 PM
Author	ismael	
Create Date Time	Oct 5, 2012 12:41:56 PM	
Last Modified	Oct 5, 2012 12:51:52 PM	
Type	Self Message	
Sequence Number	2.1	
Asynchronous	false	

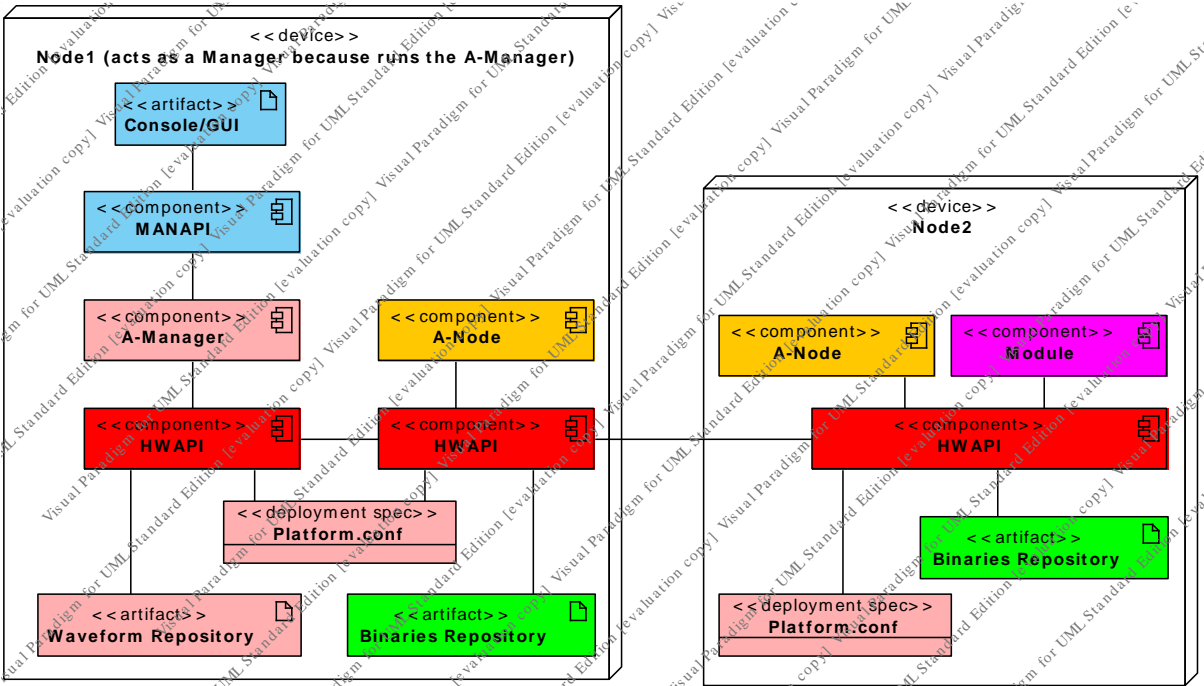
OK/ERROR : Message		
To	Name	Value
	End Model Element	 A-Manager
	Author	ismael
	Create Date Time	Oct 5, 2012 12:42:10 PM
Author	ismael	
Create Date Time	Oct 5, 2012 12:42:10 PM	
Last Modified	Oct 5, 2012 12:51:52 PM	
Type	Duration Message	
Sequence Number	2.3	
Asynchronous	false	

unserializeTo(object) : Message		
To	Name	Value
	End Model Element	 A-Node
	Author	ismael
	Create Date Time	Oct 5, 2012 12:42:00 PM
Author	ismael	
Create Date Time	Oct 5, 2012 12:42:00 PM	
Last Modified	Oct 5, 2012 12:51:52 PM	
Type	Self Message	
Sequence Number	2.2	
Asynchronous	false	

SET : Message		
From	Name	Value
	End Model Element	 A-Manager
	Author	ismael
	Create Date Time	Oct 5, 2012 12:40:35 PM
Author	ismael	
Create Date Time	Oct 5, 2012 12:40:35 PM	
Last Modified	Oct 5, 2012 12:51:52 PM	
Type	Duration Message	
Sequence Number	2	
Asynchronous	false	

Deployment Diagram



Platform Deployment



Name	Value
Name	Platform Deployment
Author	ismael
Create Date Time	Sep 12, 2012 2:07:11 AM
Last Modified	Oct 8, 2012 8:09:07 PM

Summary

Name	Documentation
Node1 (acts as a Manager because runs the A-Manager)	
Console/GUI	
Node2	
MANAPI	
A-Manager	
A-Node	
A-Node	
Module	
HWAPI	
HWAPI	
HWAPI	
Platform.conf	
Binaries Repository	
Waveform Repository	





 Binaries Repository	
 Platform.conf	

Details

Node1 (acts as a Manager because runs the A-Manager)

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Abstract	false
Leaf	false
Root	false
Stereotypes	device
Author	ismael
Create Date Time	Sep 12, 2012 2:09:02 AM
Last Modified	Oct 8, 2012 1:49:02 PM


Resident Components

Name	Documentation
 A-Node	
 A-Manager	
 HWAPI	
 MANAPI	

Console/GUI

Name	Value
Abstract	false
Leaf	false
Visibility	Unspecified
Author	ismael
Create Date Time	Oct 5, 2012 11:06:30 AM
Last Modified	Oct 8, 2012 1:49:02 PM

Relationships

Unnamed Association		
From	Name	Value
	End Model Element	 MANAPI
	Author	ismael
	Create Date Time	Oct 8, 2012 1:39:44 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 8, 2012 1:39:44 PM	
Last Modified	Oct 8, 2012 1:49:02 PM	
Derived	false	

Node2

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Abstract	false
Leaf	false
Root	false
Stereotypes	device
Author	ismael
Create Date Time	Sep 12, 2012 2:09:05 AM
Last Modified	Oct 8, 2012 1:32:14 PM


Resident Components


Name	Documentation
 Module	

MANAPI

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Abstract	false
Leaf	false
Root	false
Author	ismael
Create Date Time	Oct 8, 2012 1:39:06 PM
Last Modified	Oct 8, 2012 1:49:02 PM
Indirectly Instantiated	true

Relationships


Unnamed Association		
To	Name	Value
	End Model Element	 Console/GUI
	Author	ismael
	Create Date Time	Oct 8, 2012 1:39:44 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 8, 2012 1:39:44 PM	
Last Modified	Oct 8, 2012 1:49:02 PM	
Derived	false	


Unnamed Association		
From	Name	Value
	End Model Element	 A-Manager
	Author	ismael
	Create Date Time	Oct 8, 2012 1:39:41 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 8, 2012 1:39:41 PM	
Last Modified	Oct 8, 2012 1:49:02 PM	
Derived	false	

A-Manager

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Abstract	false
Leaf	false
Root	false
Author	ismael
Create Date Time	Oct 5, 2012 11:07:07 AM
Last Modified	Oct 8, 2012 1:49:02 PM
Indirectly Instantiated	true

Relationships


Unnamed Association		
To	Name	Value
	End Model Element	 HWAPI
	Author	ismael
	Create Date Time	Oct 5, 2012 11:10:24 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 5, 2012 11:10:24 AM	
Last Modified	Oct 5, 2012 11:14:29 AM	
Derived	false	

Unnamed Association		
To	Name	Value
	End Model Element	 MANAPI
	Author	ismael
	Create Date Time	Oct 8, 2012 1:39:41 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 8, 2012 1:39:41 PM	
Last Modified	Oct 8, 2012 1:49:02 PM	
Derived	false	

A-Node

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Abstract	false
Leaf	false
Root	false
Author	ismael
Create Date Time	Oct 5, 2012 11:06:47 AM
Last Modified	Oct 5, 2012 11:23:14 AM
Indirectly Instantiated	true


Relationships

Unnamed Association		
To	Name	Value
	End Model Element	 HWAPI
	Author	ismael
	Create Date Time	Oct 5, 2012 11:10:27 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 5, 2012 11:10:27 AM	
Last Modified	Oct 5, 2012 11:23:14 AM	
Derived	false	

A-Node

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Abstract	false
Leaf	false
Root	false
Author	ismael
Create Date Time	Oct 5, 2012 11:06:47 AM
Last Modified	Oct 5, 2012 11:23:14 AM
Indirectly Instantiated	true


Relationships

Unnamed Association		
To	Name	Value
	End Model Element	 HWAPI
	Author	ismael
	Create Date Time	Oct 5, 2012 11:10:27 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 5, 2012 11:10:27 AM	
Last Modified	Oct 5, 2012 11:23:14 AM	
Derived	false	

Module

Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Abstract	false
Leaf	false
Root	false
Author	ismael
Create Date Time	Oct 8, 2012 1:29:10 PM
Last Modified	Oct 8, 2012 1:32:14 PM
Indirectly Instantiated	true


Relationships


Unnamed Association		
From	Name	Value
	End Model Element	 HWAPI
	Author	ismael
	Create Date Time	Oct 8, 2012 1:29:35 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 8, 2012 1:29:35 PM	
Last Modified	Oct 8, 2012 1:32:14 PM	
Derived	false	


HWAPI


Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Abstract	false
Leaf	false
Root	false
Author	ismael
Create Date Time	Oct 5, 2012 11:09:50 AM
Last Modified	Oct 5, 2012 11:14:29 AM
Indirectly Instantiated	true

Relationships

Unnamed Association		
To	Name	Value
	End Model Element	 HWAPI
	Author	ismael
	Create Date Time	Oct 5, 2012 11:10:19 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 5, 2012 11:10:19 AM	
Last Modified	Oct 5, 2012 11:14:29 AM	
Derived	false	

Unnamed Association		
To	Name	Value
	End Model Element	 Platform.conf
	Author	ismael
	Create Date Time	Oct 5, 2012 11:11:07 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 5, 2012 11:11:07 AM	
Last Modified	Oct 5, 2012 11:14:29 AM	
Derived	false	


Unnamed Association		
To	Name	Value
	End Model Element	 Waveform Repository
	Author	ismael
	Create Date Time	Oct 5, 2012 11:12:14 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 5, 2012 11:12:14 AM	
Last Modified	Oct 5, 2012 11:14:29 AM	
Derived	false	


Unnamed Association		
From	Name	Value
	End Model Element	 A-Manager
	Author	ismael
	Create Date Time	Oct 5, 2012 11:10:24 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 5, 2012 11:10:24 AM	
Last Modified	Oct 5, 2012 11:14:29 AM	
Derived	false	


HWAPI


Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Abstract	false
Leaf	false
Root	false
Author	ismael
Create Date Time	Oct 5, 2012 11:09:54 AM
Last Modified	Oct 8, 2012 1:32:14 PM
Indirectly Instantiated	true


Relationships

Unnamed Association		
To	Name	Value
	End Model Element	 Platform.conf
	Author	ismael
	Create Date Time	Oct 5, 2012 11:12:19 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 5, 2012 11:12:19 AM	
Last Modified	Oct 5, 2012 11:14:29 AM	
Derived	false	

Unnamed Association		
To	Name	Value
	End Model Element	 HWAPI
	Author	ismael
	Create Date Time	Oct 5, 2012 11:13:09 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 5, 2012 11:13:09 AM	
Last Modified	Oct 5, 2012 11:14:29 AM	
Derived	false	

Unnamed Association		
To	Name	Value
	End Model Element	 Binaries Repository
	Author	ismael
	Create Date Time	Oct 5, 2012 11:29:28 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 5, 2012 11:29:28 AM	
Last Modified	Oct 5, 2012 11:35:02 AM	
Derived	false	


Unnamed Association		
From	Name	Value
	End Model Element	 HWAPI
	Author	ismael
	Create Date Time	Oct 5, 2012 11:10:19 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 5, 2012 11:10:19 AM	
Last Modified	Oct 5, 2012 11:14:29 AM	
Derived	false	


Unnamed Association		
From	Name	Value
	End Model Element	 A-Node
	Author	ismael
	Create Date Time	Oct 5, 2012 11:10:27 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 5, 2012 11:10:27 AM	
Last Modified	Oct 5, 2012 11:23:14 AM	
Derived	false	


HWAPI


Name	Value
Active	false
Business Key Mutable	true
Business Model	false
Visibility	public
Abstract	false
Leaf	false
Root	false
Author	ismael
Create Date Time	Oct 5, 2012 11:09:54 AM
Last Modified	Oct 8, 2012 1:32:14 PM
Indirectly Instantiated	true


Relationships

Unnamed Association		
To	Name	Value
	End Model Element	 Platform.conf
	Author	ismael
	Create Date Time	Oct 5, 2012 11:23:57 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 5, 2012 11:23:57 AM	
Last Modified	Oct 5, 2012 11:24:46 AM	
Derived	false	

Unnamed Association		
To	Name	Value
	End Model Element	 Binaries Repository
	Author	ismael
	Create Date Time	Oct 5, 2012 11:24:00 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 5, 2012 11:24:00 AM	
Last Modified	Oct 5, 2012 11:24:46 AM	
Derived	false	

Unnamed Association		
To	Name	Value
	End Model Element	 Module
	Author	ismael
	Create Date Time	Oct 8, 2012 1:29:35 PM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 8, 2012 1:29:35 PM	
Last Modified	Oct 8, 2012 1:32:14 PM	
Derived	false	

Unnamed Association		
From	Name	Value
	End Model Element	 A-Node
	Author	ismael
	Create Date Time	Oct 5, 2012 11:10:27 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 5, 2012 11:10:27 AM	
Last Modified	Oct 5, 2012 11:23:14 AM	
Derived	false	


Unnamed Association		
From	Name	Value
	End Model Element	 HWAPI
	Author	ismael
	Create Date Time	Oct 5, 2012 11:13:09 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 5, 2012 11:13:09 AM	
Last Modified	Oct 5, 2012 11:14:29 AM	
Derived	false	




Platform.conf

Name	Value
Abstract	false
Leaf	false
Visibility	Unspecified
Author	ismael
Create Date Time	Sep 12, 2012 2:19:59 AM
Last Modified	Oct 5, 2012 11:24:46 AM

Relationships


Unnamed Association		
From	Name	Value
	End Model Element	 HWAPI
	Author	ismael
	Create Date Time	Oct 5, 2012 11:11:07 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 5, 2012 11:11:07 AM	
Last Modified	Oct 5, 2012 11:14:29 AM	
Derived	false	

Unnamed Association		
From	Name	Value
	End Model Element	 HWAPI
	Author	ismael
	Create Date Time	Oct 5, 2012 11:12:19 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 5, 2012 11:12:19 AM	
Last Modified	Oct 5, 2012 11:14:29 AM	
Derived	false	

Binaries Repository

Name	Value
Abstract	false
Leaf	false
Visibility	Unspecified
Author	ismael
Create Date Time	Oct 5, 2012 11:15:30 AM
Last Modified	Oct 5, 2012 11:35:02 AM


Relationships

Unnamed Association		
From	Name	Value
	End Model Element	 HWAPI
	Author	ismael
	Create Date Time	Oct 5, 2012 11:24:00 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 5, 2012 11:24:00 AM	
Last Modified	Oct 5, 2012 11:24:46 AM	
Derived	false	

Waveform Repository

Name	Value
Abstract	false
Leaf	false
Visibility	Unspecified
Author	ismael
Create Date Time	Sep 12, 2012 8:57:32 PM
Last Modified	Oct 5, 2012 11:14:29 AM


Relationships

Unnamed Association		
From	Name	Value
	End Model Element	 HWAPI
	Author	ismael
	Create Date Time	Oct 5, 2012 11:12:14 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 5, 2012 11:12:14 AM	
Last Modified	Oct 5, 2012 11:14:29 AM	
Derived	false	

Binaries Repository

Name	Value
Abstract	false
Leaf	false
Visibility	Unspecified
Author	ismael
Create Date Time	Oct 5, 2012 11:15:30 AM
Last Modified	Oct 5, 2012 11:35:02 AM


Relationships

Unnamed Association		
From	Name	Value
	End Model Element	 HWAPI
	Author	ismael
	Create Date Time	Oct 5, 2012 11:29:28 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 5, 2012 11:29:28 AM	
Last Modified	Oct 5, 2012 11:35:02 AM	
Derived	false	

Platform.conf

Name	Value
Abstract	false
Leaf	false
Visibility	Unspecified
Author	ismael
Create Date Time	Sep 12, 2012 2:19:59 AM
Last Modified	Oct 5, 2012 11:24:46 AM

Relationships

Unnamed Association		
From	Name	Value
	End Model Element	 HWAPI
	Author	ismael
	Create Date Time	Oct 5, 2012 11:23:57 AM
	Provide Property Getter Method	false
	Provide Property Setter Method	false
	Multiplicity	Unspecified
	Visibility	Unspecified
	Aggregation Kind	None
	Navigable	true
	Derived	false
	Derived Union	false
	Read Only	false
	Static	false
	Leaf	false
Abstract	false	
Leaf	false	
Visibility	Unspecified	
Author	ismael	
Create Date Time	Oct 5, 2012 11:23:57 AM	
Last Modified	Oct 5, 2012 11:24:46 AM	
Derived	false	