

MOST

Media Oriented Systems Transport

Multimedia and Control
Networking Technology

MOST FBlock DebugMessages

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Bibliography

All documents, which this MOST document have references to, are listed here with the actual revision this document is referring to.

Number	Document	Revision
[1]	MOST Specification	3.0

Document History

Changes DebugMessages FBlock Rev. 1.0 to DebugMessages FBlock Rev. 1.0.1

Change Ref.	FktID	Changes
1V01-001	-	– Changed FBlockID to 0x09.
1V01-002	0x000	Adjust_Application_DebugMessage: – Changed to Unclassified Property – OPType Get now has FktID as parameter – OPType Status now returns a list of FktID/DebugLevel pairs. – The wildcard value for FktID is now 0xFFFF instead of 0xFFFFF.

DebugMessages FBlock Rev. 1.0

Change Ref.	FktID	Changes
1V0-001	-	Initial version

1 Introduction

A MOST Function Catalog is a collection of MOST Function Blocks (FBlocks).

This document contains the specification of an FBlock. MOST FBlocks are standardized and maintained by MOST workgroup Device Architecture (WG_DA). In order to speed up the process of making new FBlocks available, every FBlock will be updated individually as required.

2 Function Catalog

2.1 DebugMessages (FBlockID=0x09)

The DebugMessages FBlock provides functions to send so-called "debug events". "Debug events" are categorized as error, warning, or info.

One "debug event" function corresponds to a hardware unit, software unit, or layer, or even a combination of those. The scope of the function is defined in its description.

The System Integrator may copy the defined debug event function Application_DebugMessage (0x003) to FktIDs 0x004 and higher and assign the copies to suppliers.

The DebugMessages FBlock is not included in the Central Registry. The InstID of the FBlock is equal to the node position of the device that implements the FBlock.

The debug event functions and their copies send their messages to the debug address (0x0FF0); no retries are performed.

Note: Every debug message uses a *Timestamp* parameter. The source of that timestamp does not have to be identical for all debug event functions; even if debug events on the levels of Network Interface Controller, Network Service, and application are generated at the same time, the timestamps may differ, depending on the architecture of the system.

In addition to the debug event functions, one function, Adjust_Application_DebugMessage is provided for adjusting the "debug level" for application-related debug events. This function changes the debug level of the Application_DebugMessage function (0x003) or the copies of that function, depending on the FktID parameter. The target address of Adjust_Application_DebugMessage is a regular device address and retries are performed.

Note: "Application-related" is used in a broad sense here; it may be anything from application over boot loader to low level drivers.

Function Overview		
FktID	Name	Occurrence
0x000	Adjust_Application_DebugMessage	Optional
0x001	NIC_DebugMessage	Optional
0x002	NetworkService_DebugMessage	Optional
0x003	Application_DebugMessage	Optional

2.1.1 Adjust_Application_DebugMessage (0x000)

Occurrence: Optional

This function is used to set the debug level for reporting debug events of the "application" category. This means that Adjust_Application_DebugMessage can change the debug level of Application_DebugMessage (0x003) and all supplier-specific copies of that function, depending on the FktID parameter.

2.1.1.1 Format of Function

Function classes: Unclassified Property

FBlock	Function	OPType	Parameter
DebugMessages (0x09)	Adjust_Application_DebugMessage (0x000)	Set	FktID , DebugLevels
		Get	FktID
		SetGet	FktID , DebugLevels
		Status	DebugLevelList
		Error	ErrorCode, ErrorInfo

2.1.1.2 Parameter

FktID

The FktID parameter identifies the function that is affected by Adjust_Application_DebugMessage. If FktID is set to 0xFFFF, then Application_DebugMessage (0x003) and all supplier-specific copies are addressed.

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Word	0	0x3...0xFFFF	1	none

DebugLevels

This parameter is used to configure which debug events will be reported. The default value is 0x00 (DebugLevelOff).

Basis data type	Range of values	Code	Symbolic Name	Description
Enum	0x00...0x03	0x00	DebugLevelOff	Debug Level: nothing is reported
		0x01	DebugLevelError	Debug Level: errors only
		0x02	DebugLevelWarning	Debug Level: errors and warnings
		0x03	DebugLevelInfo	Debug Level: errors, warnings, and info

DebugLevelList

A list of FktID/DebugLevel pairs.

Basis data type	Length	Condition	Description
Stream		-	Content: DebugLevelEntry (repeated)

DebugLevelEntry

One FktID/DebugLevel pair.

Bit 15...12: DebugLevel of the corresponding FktID

Bit 11...0: FktID

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Word	0		1	none

2.1.2 NIC_DebugMessage (0x001)

Occurrence: Optional

This function provides debug events that are generated by the Network Interface Controller. This function will always transmit debug events of any debug level; it always includes information, warnings, and errors and cannot be adjusted.

2.1.2.1 Format of Function

Function classes: Sequence Property

FBlock	Function	OPType	Parameter
DebugMessages (0x09)	NIC_Debug Message (0x001)	Status	DebugLevel , Timestamp , CaseIdentifier , CaseSpecificValues

2.1.2.2 Parameter

DebugLevel

This parameter determines the debug level of the debug event.

Basis data type	Range of values	Code	Symbolic Name	Description
Enum	0x01...0x03	0x01	DebugLevelError	Debug Level: error
		0x02	DebugLevelWarning	Debug Level: warning
		0x03	DebugLevelInfo	Debug Level: info

Timestamp

This is the timestamp of the originator of the debug event.
 If the feature is not supported, use 0xFFFF FFFF.

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Long	0		1	ms

CaseIdentifier

This 16 bit value identifies the debug event that occurred.

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Word	0		1	none

CaseSpecificValues

Additional information about the debug event, depending on the CaseIdentifier.

Basis data type	Length	Condition	Description
Stream		CaseIdentifier = 0x00	Reserved
		CaseIdentifier = 0xFFFF	Reserved

2.1.3 NetworkService_DebugMessage (0x002)

Occurrence: Optional

This function provides debug events that are generated by the Network Service. Unlike the Network Interface Controller debug events function, the Network Service debug events function lets the System Integrator limit the verbosity (i.e., the debug level); this, however, has to be performed at design time by--for example--setting the corresponding switch in the source code.

2.1.3.1 Format of Function

Function classes: Sequence Property

FBlock	Function	OPType	Parameter
DebugMessages (0x09)	NetworkService_ DebugMessage (0x002)	Status	DebugLevel , Timestamp , CaseIdentifier , CaseSpecificValues

2.1.3.2 Parameter

DebugLevel

This parameter determines the debug level of the debug event.

Basis data type	Range of values	Code	Symbolic Name	Description
Enum	0x01...0x03	0x01	DebugLevelError	Debug Level: error
		0x02	DebugLevelWarning	Debug Level: warning
		0x03	DebugLevelInfo	Debug Level: info

Timestamp

This is the timestamp of the originator of the debug event.
If the feature is not supported, use 0xFFFF FFFF.

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Long	0		1	ms

CaseIdentifier

This 16 bit value identifies the debug event that occurred.

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Word	0		1	none

CaseSpecificValues

Additional information about the debug event, depending on the CaseIdentifier.

Basis data type	Length	Condition	Description
Stream		CaseIdentifier = 0x00	Reserved
		CaseIdentifier = 0xFFFF	Reserved

2.1.4 Application_DebugMessage (0x003)

Occurrence: Optional

This function provides debug events that are generated by the application or other modules (e.g., boot loader, low level drivers, etc.). The verbosity (i.e., debug level) of this function can be changed through the Adjust_Application_DebugMessage function (0x000). By default, no debug messages are sent. Adjust_Application_DebugMessage is also used to change the debug level of supplier-specific copies of this function.

2.1.4.1 Format of Function

Function classes: Sequence Property

FBlock	Function	OPType	Parameter
DebugMessages (0x09)	Application_Debug Message (0x003)	Status	DebugLevel , Timestamp , CaseIdentifier , CaseSpecificValues

2.1.4.2 Parameter

DebugLevel

This parameter determines the debug level of the debug event.

Basis data type	Range of values	Code	Symbolic Name	Description
Enum	0x01...0x03	0x01	DebugLevelError	Debug Level: error
		0x02	DebugLevelWarning	Debug Level: warning
		0x03	DebugLevelInfo	Debug Level: info

Timestamp

This is the timestamp of the originator of the debug event.
If the feature is not supported, use 0xFFFF FFFF.

Note: Some Network Interface Controllers provide their time property as value; that time property may be reset with every Init Ready transition.

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Long	0		1	ms

CaseIdentifier

This 16 bit value identifies the debug event that occurred.

Basis data type	Exp.	Range of values	Step	Unit
Unsigned Word	0		1	none

CaseSpecificValues

Additional information about the debug event, depending on the CaseIdentifier.

Basis data type	Length	Condition	Description
Stream		CaseIdentifier = 0x00	Reserved
		CaseIdentifier = 0xFFFF	Reserved

Notes: