

MOST

Media Oriented Systems Transport

Multimedia and Control
Networking Technology

**MOST FunctionBlock ConnectionMaster –
Speed Grade MOST50
Rev 2.5.1
10/2007**



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References

Number	Document
[1]	MOST Specification 2V5
[2]	MOST FBlock template GeneralFBlock Rev 2.5.1 – Speed Grade MOST50

Bibliography MOST Library

This is a list of released FBlocks and FBlock templates at the release time of this specification. FBlocks which are released later are not reflected in this list.

FBlockID	FunctionBlock
-	GeneralFBlock
-	GeneralPlayer
0x01	NetBlock
0x02	NetworkMaster
0x03	ConnectionMaster
0x06	Diagnosis
0x0E	Tool
0x0F	Enhanced Testability
0x22	AudioAmplifier
0x24	AuxIn
0x26	MicrophoneInput
0x30	AudioTapePlayer
0x31	AudioDiskPlayer
0x34	DVDVideoPlayer
0x40	AmFmTuner
0x41	TMCTuner
0x42	TVTuner
0x43	DABTuner
0x44	SDARS
0x50	Telephone
0x51	GeneralPhoneBook
0x60	GraphicDisplay
-	Unique Functions

ConnectionMaster (0x03) FBlock Speed Grade MOST50 Change History

Changes ConnectionMaster FBlock 2.5.1 - Speed Grade MOST25 to ConnectionMaster FBlock 2.5.1 – Speed Grade MOST50

Change Ref.	FktID	Changes
2.5.1-001	-	- Created FBlock specification for speed grade MOST50, based on ConnectionMaster 2.5.1 (speed grade MOST25).
2.5.1-002	General	- Modified or added range information for SourceFBlock, SourceNr, and SinkNr (1-255).
2.5.1-003	General	- Added range information for SrcDelay (0-63).
2.5.1-004	General	- Modified parameter ChannelList so that it now consists of Blockwidth and ConnectionLabel.
2.5.1-005	General	- Modified range of Boundary Descriptor - previously 6-15, now 0-29.
2.5.1-006	0x401	- Modified range of NoChannels in AvailableChannels - previously 1-127, now 1-117.

1 Introduction

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 FBlock definition

2.1 ConnectionMaster (FBlockID=0x03)

For managing streaming connections in complex networks it is useful to introduce a higher control instance on the application level. In MOST, it will be implemented in FBlock ConnectionMaster. Since the ConnectionMaster must verify that a requested connection does not already exist, all requests for establishing connections must be directed to the ConnectionMaster.

Note: The ConnectionMaster transforms the requests for a point-to-point connection into a sequence of Allocate and Connect commands to the affected FBlocks. If a second connection is requested for the same source, no second allocation command is sent to the source. If a connection is removed, the source must not be deallocated unless it has been the last connection that uses the source. Even then, an implementation of the ConnectionMaster may choose to delay the deallocation of a source until its Streaming Channels are needed for another connection. Nevertheless, its channels must be counted as "available" with respect to the property AvailableChannels. An implementation of the ConnectionMaster may also choose to use the command SourceConnect rather than Allocate. In this case, the ConnectionMaster is responsible for maintaining the allocation table, which would be done in hardware by the TimingMaster if Allocate had been used. The usage of "SourceConnect" and "Allocate" may not be mixed within one system.

In addition to the functions contained in this document, the following functions are also part of the ConnectionMaster FBlock. They exist in the GeneralFBlock template Rev. 2.5.1 and are included here by reference:

FktID	Function name
0x000	FktIDs
0x001	Notification
0x002	NotificationCheck
0x010	Version

Function Overview		
FktID	Name	Section Type
0x200	BuildSyncConnection	Mandatory
0x201	RemoveSyncConnection	Mandatory
0x400	SyncConnectionTable	Extension
0x401	AvailableChannels	Extension
0x402	MoveBoundary	Extension
0x403	BoundaryChange	Extension

2.1.1 BuildSyncConnection (0x200)

Section type: Mandatory

This method instructs the ConnectionMaster to build a streaming connection between sink and source.

Note: An implementation may include either the Ack OPTypes or the non-Ack OPTypes. They must not be mixed.

2.1.1.1 Format of Function

Function classes: Unclassified Method

FBlock	Function	OPType	Parameter
ConnectionMaster (0x03)	BuildSyncConnection (0x200)	StartResult	SourceFBlock, SourceInstID, SourceNr, SinkFBlock, SinkInstID, SinkNr
		StartResultAck	SenderHandle, SourceFBlock, SourceInstID, SourceNr, SinkFBlock, SinkInstID, SinkNr
		ErrorAck	SenderHandle, ErrorCode, ErrorInfo
		ProcessingAck	SenderHandle
		Processing	-
		Result	SourceFBlock, SourceInstID, SourceNr, SinkFBlock, SinkInstID, SinkNr
		ResultAck	SenderHandle, SourceFBlock, SourceInstID, SourceNr, SinkFBlock, SinkInstID, SinkNr
		Error	ErrorCode, ErrorInfo

2.1.1.2 Parameter

SourceFBlock

FBlock ID of the streaming data source

Basis datatype	Exp.	Range of values	Step	Unit
Unsigned Byte	0	0..255	1	none

SourceInstID

Instance ID of the streaming data source

Basis datatype	Exp.	Range of values	Step	Unit
Unsigned Byte	0		1	none

SourceNr

Number of data source within the source FBlock. 0x01 is used for the first source.

Basis datatype	Exp.	Range of values	Step	Unit
Unsigned Byte	0		1	none

SinkFBlock

FBlock ID of the streaming data sink.

Basis datatype	Exp.	Range of values	Step	Unit
Unsigned Byte	0	0..255	1	none

SinkInstID

Instance ID of the streaming data sink.

Basis datatype	Exp.	Range of values	Step	Unit
Unsigned Byte	0		1	none

SinkNr

Number of data sink within the sink FBlock. 0x01 is used for the first sink.

Basis datatype	Exp.	Range of values	Step	Unit
Unsigned Byte	0		1	none

SenderHandle

Unique identifier of a task.

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

ErrorInfo

Besides the error information provided in the MOST Specification, a number of function specific error info values are specified here.

Basis datatype	Length	Condition	Description
Stream		-	Content: CMErrorCode, CMErrorInfo CMErrorCode{, CMErrorInfo}

CMErrorCode

Function specific error codes for the ConnectionMaster.

Basis datatype	Range of values	Code	Description
Enum	0x10..0x15	0x10	Not enough channels: Not enough available channels to build streaming connection.
		0x11	Device Busy: Source or sink is busy at the moment and no connection was built or removed.
		0x12	Source error: A persistent source error.
		0x13	Sink error: A persistent sink error.
		0x14	Sink in use: The sink is already in use and no connection was built.
		0x15	Source sink mismatch: The sink does not support the data format that is received from the source.

CMErrInfo

Basis datatype	Length	Condition	Description
Stream		CMErrCode = 0x10	Content: NoAvailChannels, NoReqChannels
		CMErrCode = 0x11...0x15	No Info.

NoAvailChannels

Number of available channels.

Basis datatype	Exp.	Range of values	Step	Unit
Unsigned Byte	0	full range	1	none

NoReqChannels

Number of required channels.

Basis datatype	Exp.	Range of values	Step	Unit
Unsigned Byte	0	full range	1	none

2.1.2 RemoveSyncConnection (0x201)

Section type: Mandatory

This method instructs the ConnectionMaster to remove the streaming connection between the specified sink and source.

Note: An implementation may include either the Ack OPTypes or the non-Ack OPTypes. They must not be mixed.

2.1.2.1 Format of Function

Function classes: Unclassified Method

FBlock	Function	OPType	Parameter
ConnectionMaster (0x03)	RemoveSyncConnection (0x201)	StartResult	SourceFBlock, SourceInstID, SourceNr, SinkFBlock, SinkInstID, SinkNr
		StartResult Ack	SenderHandle, SourceFBlock, SourceInstID, SourceNr, SinkFBlock, SinkInstID, SinkNr
		ErrorAck	SenderHandle, ErrorCode, ErrorInfo
		Processing Ack	SenderHandle
		Processing	-
		Result	SourceFBlock, SourceInstID, SourceNr, SinkFBlock, SinkInstID, SinkNr
		ResultAck	SenderHandle, SourceFBlock, SourceInstID, SourceNr, SinkFBlock, SinkInstID, SinkNr
		Error	ErrorCode, ErrorInfo

2.1.2.2 Parameter

SourceFBlock

FBlock ID of the streaming data source.

Basis datatype	Exp.	Range of values	Step	Unit
Unsigned Byte	0	0..255	1	none

SourceInstID

Instance ID of the streaming data source.

Basis datatype	Exp.	Range of values	Step	Unit
Unsigned Byte	0		1	none

SourceNr

Number of data source within the Source FBlock. 0x01 is used for the first source.

Basis datatype	Exp.	Range of values	Step	Unit
Unsigned Byte	0		1	none

SinkFBlock

FBlockID of the streaming data sink.

Basis datatype	Exp.	Range of values	Step	Unit
Unsigned Byte	0	0..255	1	none

SinkInstID

Instance ID of the streaming data sink.

Basis datatype	Exp.	Range of values	Step	Unit
Unsigned Byte	0		1	none

SinkNr

Number of the data sink within the sink FBlock. 0x01 is used for the first sink.

Basis datatype	Exp.	Range of values	Step	Unit
Unsigned Byte	0		1	none

SenderHandle

Unique identifier of a task.

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

2.1.3 SyncConnectionTable (0x400)

Section type: Extension

The ConnectionMaster generates an array of all existing connections, including sources and sinks, where it adds more information. This array is accessible in the property SyncConnectionTable.

2.1.3.1 Format of Function

Function classes: Unclassified Property

FBlock	Function	OPType	Parameter
ConnectionMaster (0x03)	SyncConnectionTable (0x400)	Get	-
		Status	ConnectionList
		Error	ErrorCode, ErrorInfo

2.1.3.2 Parameter

ConnectionList

Basis datatype	Length	Condition	Description
Stream		-	Content: SourceFBlock, SourceInstID, SourceNr, SinkFBlock, SinkInstID, SinkNr, SrcDelay, NoChannels, ChannelList SourceFBlock, SourceInstID, SourceNr, SinkFBlock, SinkInstID, SinkNr, SrcDelay, NoChannels, ChannelList {, SourceFBlock, SourceInstID, SourceNr, SinkFBlock, SinkInstID, SinkNr, SrcDelay, NoChannels, ChannelList}

SourceFBlock

FBlock ID of the streaming data source.

Basis datatype	Exp.	Range of values	Step	Unit
Unsigned Byte	0	1..255	1	none

SourceInstID

Instance ID of the streaming data source

Basis datatype	Exp.	Range of values	Step	Unit
Unsigned Byte	0		1	none

SourceNr

Number of a data source within the Source FBlock. 0x01 is used for the first source.

Basis datatype	Exp.	Range of values	Step	Unit
Unsigned Byte	0	1..255	1	none

SinkFBlock

FBlock ID of the streaming data sink.

Basis datatype	Exp.	Range of values	Step	Unit
Unsigned Byte	0	0..255	1	none

SinkInstID

Instance ID of the streaming data sink.

Basis datatype	Exp.	Range of values	Step	Unit
Unsigned Byte	0		1	none

SinkNr

Number of a data sink within the sink FBlock. 0x01 is used for the first sink.

Basis datatype	Exp.	Range of values	Step	Unit
Unsigned Byte	0	1..255	1	none

SrcDelay

Delay of streaming data related to the TimingMaster.

Basis datatype	Exp.	Range of values	Step	Unit
Unsigned Byte	0	0..63	1	none

NoChannels

For use with MOST50, this is always 0x04.

Basis datatype	Exp.	Range of values	Step	Unit
Unsigned Byte	0	4..4	1	none

ChannelList

Block width and connection label for streaming connection.

Basis datatype	Length	Condition	Description
Stream		-	Content: BlockWidth, ConnectionLabel

BlockWidth

Number of transferred bytes per MOST frame

Basis datatype	Exp.	Range of values	Step	Unit
Unsigned Word	0	1..117	1	none

ConnectionLabel

Connection identifier.

Basis datatype	Exp.	Range of values	Step	Unit
Unsigned Word	0	11..127	1	none

2.1.4 AvailableChannels (0x401)

Section type: Extension

This property reflects the number of streaming channels that are currently available for connection requests.

2.1.4.1 Format of Function

Function classes: Unclassified Property

FBlock	Function	OPType	Parameter
ConnectionMaster (0x03)	AvailableChannels (0x401)	Get	-
		Status	NoChannels
		Error	ErrorCode, ErrorInfo

2.1.4.2 Parameter

NoChannels

Number of available channels.

Basis datatype	Exp.	Range of values	Step	Unit
Unsigned Byte	0	1..117	1	none

2.1.5 MoveBoundary (0x402)

Section type: Extension

This method instructs the ConnectionMaster to adjust the boundary between streaming data and packet data to the given value.

2.1.5.1 Format of Function

Function classes: Sequence Method

FBlock	Function	OPType	Parameter
ConnectionMaster (0x03)	MoveBoundary (0x402)	StartResult	BoundaryDescriptor
		Processing	-
		Result	BoundaryDescriptor
		Error	ErrorCode, ErrorInfo

2.1.5.2 Parameter

BoundaryDescriptor

Value of the Boundary Descriptor.

Basis datatype	Exp.	Range of values	Step	Unit
Unsigned Byte	0	0..29	1	none

2.1.6 BoundaryChange (0x403)

Section type: Extension

This property is used to inform devices in the network of the status of the boundary change process initiated by the method MoveBoundary (0x402). By adding this property for notification, a device is notified by the ConnectionMaster before the boundary is actually changed due to the invocation of method MoveBoundary. The delay between sending of the notification and initiation of the boundary change process by the ConnectionMaster is system specific and should be configured by each System Integrator. The boundary change is initiated by removing all streaming connections and changing the boundary value in the TimingMaster. A notification is also sent when the boundary change process is completed.

Note: Removing all existing streaming connections before the boundary is changed is not required for MOST50.

2.1.6.1 Format of Function

Function classes: Unclassified Property

FBlock	Function	OPType	Parameter
ConnectionMaster (0x03)	BoundaryChange (0x403)	Get	-
		Status	BoundaryChange
		Error	ErrorCode, ErrorInfo

2.1.6.2 Parameter

BoundaryChange

Current state of the boundary.

Basis datatype	Bit #	Code	Description
Boolean	Bit 0	True	Ongoing boundary change
		False	Boundary stable