

MOST

Media Oriented Systems Transport

Multimedia and Control
Networking Technology

MOST FunctionBlock ConnectionMaster

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Bibliography

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

Number	Document	Revision
[1]	MOST Specification	3.0
[2]	MOST FBlock template GeneralFBlock	3.0.3

Document History

Changes ConnectionMaster FBlock 3.0.1 to ConnectionMaster FBlock 3.0.2

Change Ref.	FktID	Changes
3.0.2-001	General	<ul style="list-style-type: none"> – Corrected invalid range values. – Filled the SymbolicName attribute for all Enums.

Changes ConnectionMaster FBlock 3.0.0 to ConnectionMaster FBlock 3.0.1

Change Ref.	FktID	Changes
3.0.1-001	General	<ul style="list-style-type: none"> – Removed obsolete FunctionSection attributes. – FBlock is no longer mandatory.
3.0.1-002	0x400	– ConnectionTable: Distinguished between MOST50 and MOST150 ranges for ConnectionLabel.
3.0.1-003	0x401	– AvailableChannels: Distinguished between MOST50 and MOST150 ranges for NoChannels.
3.0.1-004	0x402	– MoveBoundary: Distinguished between MOST50 and MOST150 ranges for BoundaryDescriptor.

Changes ConnectionMaster FBlock 2.5.1 - Speed Grade MOST50 to ConnectionMaster FBlock 3.0.0

Change Ref.	FktID	Changes
3.0.0-001	General	<ul style="list-style-type: none"> – Added Occurrence attribute to all functions. – Corrected ParamPos from 1 to 0 for parameterless OPTypes. – Unified descriptions of identical parameters and corrected clerical errors. – Removed SrcDelay parameter. – Removed NoChannels with fixed value 0x04. – Modified boundary descriptor range--now 0..93. – Replaced ChannelList with BlockWidth, ConnectionLabel.
3.0.0-002	0x200	<ul style="list-style-type: none"> – Changed function class for function BuildSyncConnection from Unclassified Method to Sequence Method. – Renamed BuildSyncConnection to BuildConnection.
3.0.0-003	0x201	<ul style="list-style-type: none"> – Changed function class for function RemoveSyncConnection from Unclassified Method to SequenceMethod. – Renamed RemoveSyncConnection to RemoveConnection.
3.0.0-004	0x400	<ul style="list-style-type: none"> – Changed function class for function ConnectionTable from Unclassified Property to Container. – Renamed SyncConnectionTable to ConnectionTable.
3.0.0-005	0x401	– Changed function class for function AvailableChannngels from Unclassified Property to Number.
3.0.0-006	0x402	<ul style="list-style-type: none"> – Added StartResultAck, ProcessingAck, ResultAck, and ErrorAck OPTypes to function MoveBoundary. – Modified description of MoveBoundary. Removing all connections is not required anymore.
3.0.0-007	0x403	– Changed function class for function BoundaryChange from Unclassified Property to Switch.

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. 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.

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. 3.0.2 and are included here by reference:

FktID	Function name
0x000	FktIDs
0x001	Notification
0x002	NotificationCheck
0x010	Version
0x011	FBlockInfo

Function Overview		
FktID	Name	Occurrence
0x200	BuildConnection	Mandatory
0x201	RemoveConnection	Mandatory
0x400	ConnectionTable	Optional
0x401	AvailableChannels	Optional
0x402	MoveBoundary	Optional
0x403	BoundaryChange	Optional

2.1.1 BuildConnection (0x200)

Occurrence: 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: Sequence Method

FBlock	Function	OPType	Parameter
ConnectionMaster (0x03)	BuildConnection (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 data type	Exp.	Range of values	Step	Unit
Unsigned Byte	0	0...0xFF	1	none

SourceInstID

Instance ID of the streaming data source

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

SinkFBlock

FBlock ID of the streaming data sink.

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

SinkInstID

Instance ID of the streaming data sink.

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

SenderHandle

Unique identifier of the requesting task within the device.

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

ErrorInfo

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

Basis data type	Length	Condition	Description
Stream		-	Content: CMErrorCode , CMErrorInfo Stream structure: CMErrorCode{, CMErrorInfo}

CMErrCode

Function specific error codes for the ConnectionMaster.

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

CMErrInfo

Basis data type	Length	Condition	Description
Stream		CMErrCode = 0x10	Content: NoAvailChannels , NoReqChannels
		CMErrCode = 0x11 ... 0x15	No info.

NoAvailChannels

Number of available channels.

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

NoReqChannels

Number of required channels.

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

2.1.2 RemoveConnection (0x201)

Occurrence: 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: Sequence Method

FBlock	Function	OPType	Parameter
ConnectionMaster (0x03)	Remove- Connection (0x201)	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

2.1.2.2 Parameter

SourceFBlock

FBlock ID of the streaming data source.

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

SourceInstID

Instance ID of the streaming data source.

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

SinkFBlock

FBlockID of the streaming data sink.

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

SinkInstID

Instance ID of the streaming data sink.

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

SenderHandle

Unique identifier of the requesting task within the device.

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

2.1.3 ConnectionTable (0x400)

Occurrence: Optional

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 ConnectionTable.

2.1.3.1 Format of Function

Function classes: Container

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

2.1.3.2 Parameter

ConnectionList

Basis data type	Length	Condition	Description
Stream		-	Content: SourceFBlock (repeated), SourceInstID (repeated), SourceNr (repeated), SinkFBlock (repeated), SinkInstID (repeated), SinkNr (repeated), BlockWidth (repeated), ConnectionLabel (repeated) Stream structure: {SourceFBlock1, SourceInstID1, SourceNr1, SinkFBlock1, SinkInstID1, SinkNr1, BlockWidth1, ConnectionLabel1} {, SourceFBlock2, SourceInstID2, SourceNr2, SinkFBlock2, SinkInstID2, SinkNr2, BlockWidth2, ConnectionLabel2}...

SourceFBlock

FBlock ID of the streaming data source.

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

SourceInstID

Instance ID of the streaming data source

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

SinkFBlock

FBlock ID of the streaming data sink.

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

SinkInstID

Instance ID of the streaming data sink.

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

BlockWidth

Number of transferred bytes per MOST frame.

Speed grade	Parameter value range
MOST50	1...117
MOST150	1...372

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

ConnectionLabel

Connection identifier.

Speed grade	Parameter value range
MOST50	11...127
MOST150	12...383

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

2.1.4 AvailableChannels (0x401)

Occurrence: Optional

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

2.1.4.1 Format of Function

Function classes: Number

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

2.1.4.2 Parameter

NoChannels

Number of available channels.

Speed grade	Parameter value range
MOST50	1...117
MOST150	0...372

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

2.1.5 MoveBoundary (0x402)

Occurrence: Optional

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
		StartResultAck	SenderHandle , BoundaryDescriptor
		ErrorAck	SenderHandle , ErrorCode, ErrorInfo
		ProcessingAck	SenderHandle
		Processing	-
		Result	BoundaryDescriptor
		ResultAck	SenderHandle , BoundaryDescriptor
		Error	ErrorCode, ErrorInfo

2.1.5.2 Parameter

BoundaryDescriptor

Value of the Boundary Descriptor.

Speed grade	Parameter value range
MOST50	0...29
MOST150	0...93

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

SenderHandle

Unique identifier of the requesting task within the device.

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

2.1.6 BoundaryChange (0x403)

Occurrence: Optional

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. A notification is also sent when the boundary change process is completed.

2.1.6.1 Format of Function

Function classes: Switch

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 data type	Bit #	Code	Description
Boolean	Bit 0	True	Ongoing boundary change
		False	Boundary stable