

MOST

Media Oriented Systems Transport

Multimedia and Control
Networking Technology

MOST FBlock 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	3.1
[2]	MOST FBlock template GeneralFBlock	3.1

Document History

Changes ConnectionMaster FBlock 3.0.2 to ConnectionMaster FBlock 3.1.0

Change Ref.	FktID	Changes
3.1.0-001	General	– Removed FBlockInfo (0x011) from list of functions that are referenced from the GeneralFBlock.
3.1.0-002	0x200	BuildConnection: – Renamed NoAvailChannels to AvailableBandwidth and NoReqChannels to RequiredBandwidth. Changed unit to Byte. – Changed CMEErrorCode 0x10 from NotEnoughChannels to NotEnoughBandwidth. – Set ErrorCode as selector for the Stream Case and set value to 0x20 (function specific error).
3.1.0-003	0x201	– RemoveConnection: Limited range for SourceFBlock, SinkFBlock, SourceInstID, and SinkInstID parameters;
3.1.0-004	0x400	– ConnectionTable: Limited range for Stream parameters SourceFBlock, SinkFBlock, SourceInstID, and SinkInstID.
3.1.0-005	0x401	AvailableBandwidth: – Renamed function (previously AvailableChannels). – Renamed NoChannels to AvailableBandwidth. Changed unit to Byte. – Changed AvailableBandwidth parameter to Unsigned Word. Changed unit to Byte.
3.1.0-006	0x402	– Deleted function MoveBoundary; WGDA decision D130_9
3.1.0-007	0x403	– Deleted function BoundaryChange; WGDA decision D130_1_3

Changes ConnectionMaster FBlock 3.0.1 to ConnectionMaster FBlock 3.0.2

Change Ref.	FktID	Changes
3.0.2-001	General	– 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	– 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	-	<ul style="list-style-type: none"> Created FBlock specification for speed grade MOST50, based on ConnectionMaster 2.5.1 (speed grade MOST25).
2.5.1-002	General	<ul style="list-style-type: none"> Modified or added range information for SourceFBlock, SourceNr, and SinkNr (1-255).
2.5.1-003	General	<ul style="list-style-type: none"> Added range information for SrcDelay (0-63).
2.5.1-004	General	<ul style="list-style-type: none"> Modified parameter ChannelList so that it now consists of Blockwidth and ConnectionLabel.
2.5.1-005	General	<ul style="list-style-type: none"> Modified range of Boundary Descriptor - previously 6-15, now 0-29.
2.5.1-006	0x401	<ul style="list-style-type: none"> 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 Function Catalog

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. 3.1.0 and are included here by reference:

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

Function Overview		
FktID	Name	Occurrence
0x200	BuildConnection	Mandatory
0x201	RemoveConnection	Mandatory
0x400	ConnectionTable	Optional
0x401	AvailableBandwidth	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 class: 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	Unit	Exp.	Step	Range of values	Range description
Unsigned Byte	none	0	1	1 . . . 254	

SourceInstID

Instance ID of the streaming data source.

Basis data type	Unit	Exp.	Step	Range of values	Range description
Unsigned Byte	none	0	1	1 . . . 254	

SourceNr

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

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

SinkFBlock

FBlockID of the streaming data sink.

Basis data type	Unit	Exp.	Step	Range of values	Range description
Unsigned Byte	none	0	1	1 . . . 254	

SinkInstID

Instance ID of the streaming data sink.

Basis data type	Unit	Exp.	Step	Range of values	Range description
Unsigned Byte	none	0	1	1 . . . 254	

SinkNr

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

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

SenderHandle

Unique identifier of the requesting task within the device.

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

ErrorCode

(Refer to the MOST Specification, section "Structure of MOST Messages: OPType")

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

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		ErrorCode = 0x20	Content: CMErrCode , CMErrInfo

ErrorInfo.CMErrorCode

Function specific error codes for the ConnectionMaster.

Basis data type	Code	Name	Description
Enum (1 byte)	0x10	NotEnoughBandwidth	Not enough bandwidth Not enough available bandwidth 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.

ErrorInfo.CMErrorInfo

Basis data type	Length	Condition	Description
Stream		CMErrorCode = 0x10	Content: AvailableBandwidth , RequiredBandwidth
		CMErrorCode = 0x11...0x15	No info.

CMErrorInfo.AvailableBandwidth

Available bandwidth.

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

Basis data type	Unit	Exp.	Step
Unsigned Word	Byte	0	1

CMErrorInfo.RequiredBandwidth

Required bandwidth.

Basis data type	Unit	Exp.	Step
Unsigned Word	Byte	0	1

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 class: Sequence Method

FBlock	Function	OPType	Parameter
ConnectionMaster (0x03)	RemoveConnection (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	Unit	Exp.	Step	Range of values	Range description
Unsigned Byte	none	0	1	1 . . . 254	

SourceInstID

Instance ID of the streaming data source.

Basis data type	Unit	Exp.	Step	Range of values	Range description
Unsigned Byte	none	0	1	1 . . . 254	

SourceNr

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

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

SinkFBlock

FBlockID of the streaming data sink.

Basis data type	Unit	Exp.	Step	Range of values	Range description
Unsigned Byte	none	0	1	1 . . . 254	

SinkInstID

Instance ID of the streaming data sink.

Basis data type	Unit	Exp.	Step	Range of values	Range description
Unsigned Byte	none	0	1	1 . . . 254	

SinkNr

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

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

SenderHandle

Unique identifier of the requesting task within the device.

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

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 class: 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	Description
Stream		Content: { SourceFBlock , SourceInstID , SourceNr , SinkFBlock , SinkInstID , SinkNr , BlockWidth , ConnectionLabel }[repeated]

ConnectionList.SourceFBlock

FBlock ID of the streaming data source.

Basis data type	Unit	Exp.	Step	Range of values	Range description
Unsigned Byte	none	0	1	1 . . . 254	

ConnectionList.SourceInstID

Instance ID of the streaming data source.

Basis data type	Unit	Exp.	Step	Range of values	Range description
Unsigned Byte	none	0	1	1 . . . 254	

ConnectionList.SourceNr

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

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

ConnectionList.SinkFBlock

FBlockID of the streaming data sink.

Basis data type	Unit	Exp.	Step	Range of values	Range description
Unsigned Byte	none	0	1	1 . . . 254	

ConnectionList.SinkInstID

Instance ID of the streaming data sink.

Basis data type	Unit	Exp.	Step	Range of values	Range description
Unsigned Byte	none	0	1	1 . . . 254	

ConnectionList.SinkNr

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

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

ConnectionList.BlockWidth

Number of transferred bytes per MOST frame.

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

Basis data type	Unit	Exp.	Step
Unsigned Word	Byte	0	1

ConnectionList.ConnectionLabel

Connection identifier.

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

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

2.1.4 AvailableBandwidth (0x401)

Occurrence: Optional

This property reflects the bandwidth that is available for building streaming connections.

2.1.4.1 Format of Function

Function class: Number

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

2.1.4.2 Parameter

AvailableBandwidth

Available bandwidth.

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

Basis data type	Unit	Exp.	Step
Unsigned Word	Byte	0	1