# MULTIPLE CPU FB LIBRARY REFERENCE MANUAL

#### <CONTENTS>

Reference Manual Revision History	2
1. M+CPU-Multi_ReadCPUInfoArea (Operation information area read)	3
2. M+CPU-Multi_ReadSystemArea (System area read)	8
3. M+CPU-Multi_ReadUserSettingArea (User setting area read)	13
4. M+CPU-Multi_WriteUserSettingArea (User setting area write)	18
5. M+CPU-Multi_ReadHighSpeedArea (Multiple CPU high speed transmission area read)	23
6. M+CPU-Multi_WriteHighSpeedArea (Multiple CPU high speed transmission area write)	28
Appendix 1 - Application Examples	34



# Reference Manual Revision History

Reference Manual Number	Date	Description
FBM-M050-A	2011/3/22	First edition



# 1.M+CPU-Multi\_ReadCPUInfoArea (Operation information area read)

# FB Name

# M+CPU-Multi\_ReadCPUInfoArea

# **Function Overview**

Item	Description								
Function overview	Reads the data f	from	the operation	information	area w	/hen	multiple	CPU	system is
	configured.								
Symbol			M+CPU-	Multi_ReadCPUI	nfoArea				
	Execution command	I ———	B : FB_EN		FB_EN	ю : в	Execu	ution sta	atus
	CPU number		W : i_CPU_Numbe	r	FB_C	)К : В	Comp	leted w	thout error
	Read start address		W:i_Top_Address	:	FB_ERRC	DR : B	Error	flag	
	No. of read data	ı ———	W : i_Data_Num		ERROR_I	(D : W	Error	code	
				o_U	JNIT_ERRC	R : B	—— Modu	le error	
				o_UNIT	ERR_COD	DE : W	—— Modu	le error	code
				o_Op	perationDa	ta : W	Opera stora	ation inf ge addre	ormation ess
Applicable hardware	Hardware details								
and software		High	performance	model					
	Q series Uni		niversal model						
		*Exc	ept Q00UJCP	U					
	*Not applicable for	QCP	U (A mode)						
	Compatible softwa	re: G	X Works 2 Vers	sion 1.31H o	r later				
Programming	Ladder								
language									
Number of steps	For high performance model CPU: 221*								
(maximum value)	*The value is the number of steps in the label program, and is therefore stated as a			as a					
	reference value. F	reference value. For details, refer to the GX Works2 Version1 Operation Manual (Simple			al (Simple				
	Project).								



Item	Description			
Function description	1) By turning ON FB_EN (Execution command), the data is read from the operation			
	information area of the specified CPU number when multiple CPU system is configured.			
	2) When the input value is out of range, the FB_ERROR output turns ON, processing is			
	interrupted, and the error code is stored in ERROR_ID (Error code).			
	Refer to the error code explanation section for details.			
Compiling method	Macro type			
Restrictions and	1) The FB does not include error recovery processing. Program the error recovery			
precautions	processing separately in accordance with the required system operation.			
	2) The FB cannot be used in an interrupt program.			
	3) This FB uses index register Z9. Please do not use this index register in an interrupt			
	program.			
FB operation type	Pulsed execution (1 scan execution type)			
Application example	Refer to Appendix - Application examples.			
Timing chart	•Operation of I/O signals			
	[When operation completes without error] [When an error occurs]			
	FB_ENExecution command/ (Operation information)       PB_ENQExecution status)       Operation Information)         B_ENQ       No processing       Operation Information)         FB_ENQ       No processing       Operation Information)         FB_ENQ       No processing       Operation Information)         FB_ENQ       No processing       No processing         No processing       No processing       No processing         No processing       No processing       No processing         Status       Operation Information)       No processing         FB_ENQUError code)       0       No processing         Completed without error)       FB_ENCODE       FB_ENCODE         FB_ENEXecution command/       0       0       10~12(Decimal)       0         Completed without error)       0       0       10~12(Decimal)       0         FB_ENEXecution command/       0       0       0       10~12(Decimal)       0         Completed without error)       0			
Relevant manuals	QCPU User's Manual (Multiple CPU System)			
	QCPU User's Manual (Hardware Design, Maintenance and Inspection)			



Error codes	
Error code list	
Error code	Description
10	The specified CPU number is not valid. Set a correct number, and turn OFF FB_EN and
	then ON again.
11	The read start address is not valid. Set a correct start address, and turn OFF FB_EN and
	then ON again.
12	The number of read data is not valid. Set a correct number of read data, and turn OFF
	FB_EN and then ON again.

# Labels

# ■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	FB_EN	В	ON, OFF	ON: The FB is activated.
				OFF: The FB is not
				activated.
CPU No.	i_CPU_Number	W	1~4	Set the CPU number to
				read the operation
				information area.
Read start address	i_Top_Address	W	0~511	Set the start address from
				which the data is read.
No. of read data	i_Data_Num	W	1~512	Set the number of data to
				be read. It must be
				1≤(i_Top_Address+i_Data
				_Num)≤512.

# ■Output labels

Name	Variable name	Data type	Initial	Description
			value	
Execution status	FB_ENO	В	OFF	ON: Execution command is ON.
				OFF: Execution command is OFF.
Completed without	FB_OK	В	OFF	When ON, it indicates that the processing
error				is completed.
Error flag	FB_ERROR	В	OFF	When ON, it indicates that an error has
				occurred.



Name	Variable name	Data type	Initial	Description
			value	
Error code	ERROR_ID	W	0	FB error code output.
Module error	o_UNIT_ERROR	В	OFF	When ON, it indicates that a module error
				has occurred in the CPU where the
				function is executed.
Module error code	o_UNIT_ERR_CODE	W	0	Store a code for an error that is occurring.
				The module errors include all diagnostic
				errors which occur in the CPU where the
				function is executed.
				For details on errors, refer to the
				troubleshooting in the corresponding CPU
				user's manual.
Operation	o_OperationData	W	0	Store the start device address, which
information storage				stores the read data. Store the data for
address				i_Data_Num in addresses starting from
				this address.

# **Processing description**

# 1) The data for the number of read data is read from the read start address from the operation information area of the specified CPU number.

![](_page_5_Figure_3.jpeg)

2) The data that was read is stored in the device, which is specified with the operation information storage address.

![](_page_5_Picture_6.jpeg)

# Version Upgrade History

Version	Date	Description
1.00A	2011/03/22	First edition

#### Note

This chapter includes information related to the M+CPU-Multi\_ReadCPUInfoArea function block.

It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.

![](_page_6_Picture_6.jpeg)

# 2.M+CPU-Multi\_ReadSystemArea (System area read)

# FB Name

# M+CPU-Multi\_ReadSystemArea

# **Function Overview**

Item	Description			
Function overview	Reads the data from	the system area of other	CPU when the	multiple CPU system is
	configured.			
Symbol		M+CPU-Multi_ReadSyst	temArea	
	Execution command ——	B : FB_EN	FB_ENO : B	- Execution status
	CPU number	W : i_CPU_Number	FB_OK : B	- Completed without error
	Read start address	W:i_Top_Address	FB_ERROR : B	- Error flag
	No. of read data	W : i_Data_Num	ERROR_ID : W	– Error code
		o_	UNIT_ERROR : B	- Module error
		o_UNI	T_ERR_CODE : W	- Module error code
		c	o_SystemData:W	<ul> <li>System area information storage address</li> </ul>
Applicable hardware	Hardware details			
and software	Hi	gh performance model		
	Q series U	niversal model		
	*E	xcept Q00UJCPU		
	*Not applicable for Q	CPU (A mode)		
	Compatible software:	GX Works 2 Version 1.31H	l or later	
Programming	Ladder			
language				
Number of steps	For high performance	model CPU: 226*		
(maximum value)	*The value is the num	ber of steps in the label pro	ogram, and is the	refore stated as a
	reference value. For	details, refer to the GX Wo	rks2 Version1 Op	eration Manual (Simple
	Project).			

![](_page_7_Picture_5.jpeg)

Item	Description		
Function description	1) By turning ON FB_EN (Execution command), the data is read from the system area of		
	the specified CPU number when the multiple CPU system is configured.		
	2) When the input value is out of range, the FB_ERROR output turns ON, processing is		
	interrupted, and the error code is stored in ERROR_ID (Error code).		
	Refer to the error code explanation section for details.		
Compiling method	Macro type		
Restrictions and	1) The FB does not include error recovery processing. Program the error recovery		
precautions	processing separately in accordance with the required system operation.		
	2) The FB cannot be used in an interrupt program.		
	3) This FB uses index register Z9. Please do not use this index register in an interrupt		
	program.		
FB operation type	Pulsed execution (1 scan execution type)		
Application example	Refer to Appendix - Application examples.		
Timing chart	•Operation of I/O signals		
	[When operation completes without error] [When an error occurs]		
	FBENExecution command/ FBENCExecution status) <ul> <li>a. System Data (System rares information)</li> <li>FB.OK (Completed without error)</li> <li>FBERRORError code)</li> <li>O</li> </ul> FBERRORError code) <ul> <li>O</li> <li>System Data (System area information)</li> <li>FBERRORError code)</li> <li>O</li> </ul> <ul> <li>O</li> <li>FBERRORError code)</li> </ul> <ul> <li>O</li> <li>O</li> </ul> <ul> <li>FBERRORError code)</li> <li>O</li> </ul> <ul> <li>FBERRORError code)</li> <li>O</li> <li>O</li> </ul> <ul> <li>System Data (System area information)</li> <li>FBERRORError)</li> <li>FBERRORError)</li> <li>FBERRORError</li> <li>Completed without error)</li> <li>FBERRORError</li> <li>O</li> <li>O</li></ul>		
Relevant manuals	QCPU User's Manual (Multiple CPU System)		
	QCPU User's Manual (Hardware Design, Maintenance and Inspection)		

![](_page_8_Picture_1.jpeg)

Error codes	
Error code list	
Error code	Description
10	The specified CPU number is not valid. Set a correct number, and turn OFF FB_EN and
	then ON again.
11	The read start address is not valid. Set a correct start address, and turn OFF FB_EN and
	then ON again.
12	The number of read data is not valid. Set the correct number of read data, and turn OFF
	FB_EN and then ON again.

# Labels

# ■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	FB_EN	В	ON, OFF	ON: The FB is activated.
				OFF: The FB is not
				activated.
CPU number	i_CPU_Number	W	1~4	Set the CPU number to
				read the system area.
Read start address	i_Top_Address	W	0~1535	Set the start address
				from which the data is
				read.
No. of read data	i_Data_Num	W	1~1536	Set the number of data
				to be read. It must be
				1≤(i_Top_Address+i_Dat
				a_Num) ≤1536

# ■Output labels

Name	Variable name	Data type	Initial	Description
			value	
Execution status	FB_ENO	В	OFF	ON: Execution command is ON.
				OFF: Execution command is OFF.
Completed without	FB_OK	В	OFF	When ON, it indicates that the processing
error				is completed.
Error flag	FB_ERROR	В	OFF	When ON, it indicates that an error has
				occurred.

![](_page_9_Picture_6.jpeg)

Name	Variable name	Data type	Initial	Description
			value	
Error code	ERROR_ID	W	0	FB error code output.
Module error	o_UNIT_ERROR	В	OFF	When ON, it indicates that a module error
				has occurred in the CPU where the
				function is executed.
Module error code	o_UNIT_ERR_CODE	W	0	Store a code for an error that is occurring.
				The module errors include all diagnostic
				errors which occur in the CPU where the
				function is executed.
				For details on errors, refer to the
				troubleshooting in the corresponding CPU
				user's manual.
System area	o_SystemData	W	0	Store the start device address, which
information storage				stores the read data. Store the data for
address				i_Data_Num in addresses starting from
				this address.

# **Processing description**

# 1) The data for the number of read data is read from the read start address from the system area of the specified CPU number.

![](_page_10_Figure_3.jpeg)

2) The data that was read is stored in the device, which is specified with the system area storage address.

![](_page_10_Picture_5.jpeg)

11/40

# Version Upgrade History

Version	Date	Description
1.00A	2011/03/22	First edition

#### Note

This chapter includes information related to the M+CPU-Multi\_ReadSystemArea function block.

It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.

![](_page_11_Picture_6.jpeg)

# 3.M+CPU-Multi\_ReadUserSettingArea (User setting area read)

#### FB Name

# M+CPU-Multi\_ReadUserSettingArea

# **Function Overview**

Item	Description			
Function overview	Reads the data from the user setting area when the multiple CPU system is configured.			
Symbol		M+CPU-Multi_ReadUserSettingArea		
	Execution command — B : F	FB_EN FB_ENO : B Execution status		
	CPU number — W : i	i_CPU_Number FB_OK : B Completed without error		
	Read start address	i_Top_Address FB_ERROR : B Error flag		
	No. of read data —— W : i	i_Data_Num ERROR_ID : W Error code		
		o UNIT ERROR : B Module error		
		o UNIT ERR CODE : W Module error code		
		o FreeAreaData · W User setting area information		
		storage address		
Applicable hardware	Hardware details			
and software	High	performance model		
	Q series Unive	ersal model		
	*Exce	ept Q00UJCPU		
	*Not applicable for QCPL	J (A mode)		
	Compatible software: GX	Works 2 Version 1.31H or later		
Programming	Ladder			
language				
Number of steps	For high performance mo	odel CPU: 231*		
(maximum value)	*The value is the number	r of steps in the label program, and is therefore stated as a		
	reference value. For det	ails, refer to the GX Works2 Version1 Operation Manual (Simple		
	Project).			
Function description	1) By turning ON FB_EN	(Execution command), the data is read from the user setting area		
	of the specified CPU n	number when the multiple CPU system is configured.		
	2) When the input value i	is out of range, the FB_ERROR output turns ON, processing is		
	interrupted, and the er	ror code is stored in ERROR_ID (Error code).		
	Refer to the error code	e explanation section for details.		

![](_page_12_Picture_5.jpeg)

Item	Description
Compiling method	Macro type
Restrictions and precautions	<ol> <li>The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</li> <li>The FB cannot be used in an interrupt program.</li> <li>This FB uses index register Z9. Please do not use this index register in an interrupt</li> </ol>
	program.
FB operation type	Pulsed execution (1 scan execution type)
Application example	Refer to Appendix - Application examples.
Timing chart	<ul> <li>Operation of I/O signals</li> <li>[When operation completes without error]</li> <li>[When an error occurs]</li> <li>FB_ENExecution command)</li> <li>FB_ENExecution command)</li> <li>O_FreeArcaDatdUser esting area information)</li> <li>FB_ENOExecution command)</li> <li>O_FreeArcaDatdUser esting area information)</li> <li>ERROR[DtError code)</li> <li>FB_ENOExecution command</li> <li>JINIT_ERRORE</li> <li>JINIT_ERRORE</li></ul>
Relevant manuals	QCPU User's Manual (Multiple CPU System) QCPU User's Manual (Hardware Design, Maintenance and Inspection)

![](_page_13_Picture_1.jpeg)

Error codes	
Error code list	
Error code	Description
10	The specified CPU number is not valid. Set a correct number, and turn OFF FB_EN and
	then ON again.
11	The read start address is not valid. Set a correct start address, and turn OFF FB_EN and
	then ON again.
12	The number of read data is not valid. Set the correct number of read data, and turn OFF
	FB_EN and then ON again.

# Labels

# ■ Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	FB_EN	В	ON, OFF	ON: The FB is activated.
				OFF: The FB is not
				activated.
CPU number	i_CPU_Number	W	1~4	Set the CPU number to
				read the user setting
				area.
Read start address	i_Top_Address	W	0~2047	Set the start address
				from which the data is
				read.
No. of read data	i_Data_Num	W	1~2048	Set the number of data
				to be read. It must be
				1≤(i_Top_Address+i_Dat
				a_Num) ≤2048.

![](_page_14_Picture_4.jpeg)

#### ■Output labels

Name	Variable name	Data type	Initial	Description
			value	
Execution status	FB_ENO	В	OFF	ON: Execution command is ON.
				OFF: Execution command is OFF.
Completed without	FB_OK	В	OFF	When ON, it indicates that the processing
error				is completed.
Error flag	FB_ERROR	В	OFF	When ON, it indicates that an error has
				occurred.
Error code	ERROR_ID	W	0	FB error code output.
Module error	o_UNIT_ERROR	В	OFF	When ON, it indicates that a module error
				has occurred in the CPU where the
				function is executed.
Module error code	o_UNIT_ERR_CODE	W	0	Store a code for an error that is occurring.
				The module errors include all diagnostic
				errors which occur in the CPU where the
				function is executed.
				For details on errors, refer to the
				troubleshooting in the corresponding CPU
				user's manual.
User setting area	o_FreeAreaData	W	0	Store the start device address, which
information storage				stores the read data. Store the data for
address				i_Data_Num in addresses starting from
				this address.

![](_page_15_Picture_2.jpeg)

#### **Processing description**

1) The data for the number of read data is read from the read start address from the user setting area of the specified CPU number.

![](_page_16_Figure_2.jpeg)

For Universal model QCPU

2) The data that was read is stored in the device, which is specified with the user setting area information storage address.

#### Version Upgrade History

Version	Date	Description
1.00A	2011/03/22	First edition

#### Note

This chapter includes information related to the M+CPU-Multi\_ReadUserSettingArea function block.

It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.

![](_page_16_Picture_11.jpeg)

# 4.M+CPU-Multi\_WriteUserSettingArea (User setting area write)

#### FB Name

# M+CPU-Multi\_WriteUserSettingArea

# **Function Overview**

Item	Description	Description					
Function overview	Writes the data to	Writes the data to the user setting area of the host CPU when the multiple CPU system is					
	configured.						
Symbol			M+CPU-Multi_Write	eUserSettingArea			
	Execution commar	ıd ——	B : FB_EN	FB_ENO : B	Execution status		
	CPU numbe	er —	W : i_CPU_Number	FB_OK : B	— Completed without error		
	Write start addres	ss ——	W:i_Top_Address	FB_ERROR : B	— Error flag		
	Write data start devic	e	W : i_Data_Top	ERROR_ID : W	— Error code		
	No. write da	ta	W : i_Data_Num	o_UNIT_ERROR : B	— Module error		
				o_UNIT_ERR_CODE : ₩	— Module error code		
Applicable hardware	Hardware details		<u> </u>				
and software		Hig	h performance model				
	Q series	Uni	versal model				
		*Ex	cept Q00UJCPU				
	*Not applicable for QCPU (A mode)						
	Compatible software: GX Works 2 Version 1.31H or later						
Programming	Ladder	Ladder					
language							
Number of steps	For high performa	ance r	model CPU: 244*				
(maximum value)	*The value is the	numb	per of steps in the labe	l program, and is ther	refore stated as a		
	reference value.	For d	letails, refer to the GX	Works2 Version1 Op	eration Manual (Simple		
	Project).						
Function description	1) By turning ON	FB_E	N (Execution commar	nd), the data for the n	umber of write data is		
	written from the	e write	e data start device to t	the specified address	of the user setting area		
	of the host CP	U.					
	2) When the input	t value	e is out of range, the F	B_ERROR output tu	rns ON, processing is		
	interrupted, an	d the	error code is stored in	ERROR_ID (Error co	ode).		
	Refer to the er	ror co	de explanation section	n for details.	Refer to the error code explanation section for details.		

![](_page_17_Picture_5.jpeg)

Item	Description				
Compiling method	Macro type				
Restrictions and	1) The FB does not include error recovery processing. Program the error recovery				
precautions	processing separately in accordance with the required system operation.				
	2) The FB cannot be used in an interrupt program.				
	3) When two or more of these FBs are used, they cannot be executed simultaneously.				
	4) This FB uses index register Z9. Please do not use this index register in an interrupt				
	program.				
FB operation type	Pulsed execution (1 scan execution type)				
Application example	Refer to Appendix - Application examples.				
Timing chart	•Operation of I/O signals				
	[When operation completes without error] [When an error occurs]				
	FB_ENExecution command   FB_ENO(Execution status)   User setting area write   FB_CN   Completed without error)   FB_ERROR(Error)   ERRORJD(Error code)   FB_OK Completed without error) FB_OK FB_OK Completed without error) FB_OK Completed without error) FB_OK Completed without error) FB_OK Completed without error) OUNTLEPRCOE No processing No processing FB_OK Completed without error) OUNTLEPRCOE OUN				
Relevant manuals	QCPU User's Manual (Multiple CPU System)				

![](_page_18_Picture_1.jpeg)

# Error codes

#### Error code list

Error code	Description
10	The specified CPU number is not valid. Set a correct number, and turn OFF FB_EN and
	then ON again.
11	The write start address is not valid. Set a correct start address, and turn OFF FB_EN and
	then ON again.
12	The number of write data is not valid. Set the correct number of write data, and turn OFF
	FB_EN and then ON.

# Labels

#### Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	FB_EN	В	ON, OFF	ON: The FB is activated.
				OFF: The FB is not
				activated.
CPU number	i_CPU_Number	W	1~4	Set the number of the
				CPU to write to the user
				setting area.
Write start address	i_Top_Address	W	0~2047	Set the start address to
				which the data is written.
Write data start device	i_Data_Top	W	Valid device range	Set the start device that
				stores the data to be
				written.
No. of write data	i_Data_Num	W	1~2048	Set the number of data to
				be written. It must be
				1≤(i_Top_Address+i_Dat
				a_Num)≤2048.

# ■Output labels

Name	Variable name	Data type	Initial	Description
			value	
Execution status	FB_ENO	В	OFF	ON: Execution command is ON.
				OFF: Execution command is OFF.

![](_page_19_Picture_8.jpeg)

Name	Variable name	Data type	Initial	Description	
			value		
Completed without	FB_OK	В	OFF	When ON, it indicates that the processing	
error				is completed.	
Error flag	FB_ERROR	В	OFF	When ON, it indicates that an error has	
				occurred.	
Error code	ERROR_ID	W	0	FB error code output.	
Module error	o_UNIT_ERROR	В	OFF	When ON, it indicates that a module error	
				has occurred in the CPU where the	
				function is executed.	
Module error code	o_UNIT_ERR_CODE	W	0	Store a code for an error that is occurring.	
				The module errors include all diagnostic	
				errors which occur in the CPU where the	
				function is executed. For details on errors,	
				refer to the troubleshooting in the	
				corresponding CPU user's manual.	

# **Processing description**

1) The data for the number of write data is written from the write data start device to the write start address of the user setting area of the specified CPU number.

For Universal model QCPU

![](_page_20_Figure_4.jpeg)

![](_page_20_Picture_5.jpeg)

# Version Upgrade History

Version	Date	Description
1.00A	2011/03/22	First edition

#### Note

This chapter includes information related to the M+CPU-Multi\_WriteUserSettingArea function block.

It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.

![](_page_21_Picture_6.jpeg)

# 5.M+CPU-Multi\_ReadHighSpeedArea (Multiple CPU high speed transmission area read)

#### FB Name

# M+CPU-Multi\_ReadHighSpeedArea

# **Function Overview**

Item	Description					
Function overview	Reads the data from the multiple CPU high speed transmission area when the multiple					
	CPU system is conf	CPU system is configured.				
Symbol		M+CPU-Mult	i_ReadHighSpeedArea			
	Execution command —	B : FB_EN	FB_ENO : B	Execution status		
	CPU number	W : i_CPU_Number	FB_OK : B	Completed without error		
	Read start address	W:i_Top_Address	FB_ERROR : B	—— Error flag		
	No. of read data —	W : i_Data_Num	ERROR_ID : W	—— Error code		
			o_UNIT_ERROR : B·	Module error		
			o_UNIT_ERR_CODE : W	Module error code		
			o_HighSpeedData:W	— High speed transmission area information storage address		
Applicable hardware	Hardware details					
and software	0 series	Universal model				
		* Except Q00UJCPU, Q00UCPU, Q01UCPU, and Q02UCPU				
	*Not applicable for QCPU (A mode)					
	Compatible software: GX Works 2 Version 1.31H or later					
Programming	Ladder					
language						
Number of steps	For universal model	I CPU: 234*				
(maximum value)	*The value is the nu	mber of steps in th	e label program, and is	therefore stated as a		
	reference value. Fo	or details, refer to th	ne GX Works2 Version1	Operation Manual (Simple		
	Project).					
Function description	1) By turning ON FE	B_EN (Execution co	ommand), the data is rea	ad from the multiple CPU		
	high speed trans	mission area of the	specified CPU number	when the multiple CPU		
	system is configu	ured.				
	2) When the input v	alue is out of range	e, the FB_ERROR outpu	t turns ON, processing is		
	interrupted, and	the error code is sto	ored in ERROR_ID (Erro	or code).		
	Refer to the error code explanation section for details.					

![](_page_22_Picture_5.jpeg)

Item	Description
Compiling method	Macro type
Restrictions and precautions	<ol> <li>The FB does not include error recovery processing. Program the error recovery processing separately in accordance with the required system operation.</li> <li>The FB cannot be used in an interrupt program.</li> <li>This FB uses index register Z9. Please do not use these index registers in an interrupt program.</li> </ol>
FB operation type	Pulsed execution (1 scan execution type)
Application example	Refer to Appendix - Application examples.
Timing chart	•Operation of I/O signals [When operation completes without error] [When an error occurs] FB_ENExecution command H_BENOExecution status 0. HighSpeedDataMultiple 0. Hig
Relevant manuals	QCPU User's Manual (Multiple CPU System) QCPU User's Manual (Hardware Design, Maintenance and Inspection)

![](_page_23_Picture_1.jpeg)

# Error codes

#### Error code list

Error code	Description
10	The specified CPU number is not valid. Set a correct CPU number, and turn OFF FB_EN
	and then ON again.
11	The read start address is not valid. Set a correct start address, and turn OFF FB_EN and
	then ON again.
12	The number of read data is not valid. Set the correct number of read data, and turn OFF
	FB_EN and then ON again.

# Labels

#### Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	FB_EN	В	ON, OFF	ON: The FB is activated.
				OFF: The FB is not
				activated.
CPU number	i_CPU_Number	W	1~4	Set the CPU number to
				read the multiple CPU
				high speed transmission
				area.
Read start address	i_Top_Address	W	0~14335	Set the start address
				from which the data is
				read.
No. of read data	i_Data_Num	W	1~14336	Set the number of data
				to be read. It must be
				1≤(i_Top_Address+i_Dat
				a_Num)≤14336.

![](_page_24_Picture_6.jpeg)

## ■Output labels

Name	Variable name	Data type	Initial	Description	
			value		
Execution status	FB_ENO	В	OFF	ON: Execution command is ON.	
				OFF: Execution command is OFF.	
Completed without	FB_OK	В	OFF	When ON, it indicates that the processing	
error				is completed.	
Error flag	FB_ERROR	В	OFF	When ON, it indicates that an error has	
				occurred.	
Error code	ERROR_ID	W	0	FB error code output.	
Module error	o_UNIT_ERROR	В	OFF	When ON, it indicates that a module error	
				has occurred in the CPU where the	
				function is executed.	
Module error code	o_UNIT_ERR_CODE	W	0	Store a code for an error that is occurring.	
				The module errors include all diagnostic	
				errors which occur in the CPU where the	
				function is executed. For details on errors,	
				refer to the troubleshooting in the	
				corresponding CPU user's manual.	
High speed	o_HighSpeedData	W	0	Store the start device address, which	
transmission area				stores the read data. Store the data for	
information storage				i_Data_Num in addresses starting from	
address				this address.	

![](_page_25_Picture_2.jpeg)

#### **Processing description**

1) The data for the number of read data is read from the read start address of the multiple CPU high speed transmission area of the specified CPU number.

![](_page_26_Figure_2.jpeg)

2) The data that was read is stored in the device, which is specified with the multiple CPU high speed transmission area information storage address.

#### Version Upgrade History

Version	Date	Description
1.00A	2011/03/22	First edition

# Note

This chapter includes information related to the M+CPU-Multi\_ReadHighSpeedArea function block.

It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.

![](_page_26_Picture_10.jpeg)

# 6.M+CPU-Multi\_WriteHighSpeedArea (Multiple CPU high speed transmission area write)

#### FB Name

# M+CPU-Multi\_WriteHighSpeedArea

# **Function Overview**

Item	Description					
Function overview	Writes the data to the multiple CPU high speed transmission area of the host CPU when					
	the multiple CPU sys	stem is configu	ured.			
Symbol		M+C	PU-Multi_V	VriteHighSpeedArea		
	Execution command	B : FB_EN	1	FB_ENO : B	Execution status	
	CPU number	W : i_CPU	_Number	FB_OK : B	Completed without error	
	Write start address	s W : i_Top_	Address	FB_ERROR : B	Error flag	
	Write data start device	e ──── W : i_Data	_Тор	ERROR_ID : W	Error code	
	No. of write data	aW : i_Data	_Num	o_UNIT_ERROR : B	—— Module error	
	o_UNIT_ERR_CODE : W Module error code					
Applicable hardware	Hardware details					
and software	0 series	Jniversal mode	el			
	*	Except Q00U	ept Q00UJCPU, Q00UCPU, Q01UCPU, and Q02UCPU			
	*Not applicable for C	QCPU (A mode	e)			
	Compatible software: GX Works 2 Version 1.31H or later					
Programming	Ladder					
language						
Number of steps	For universal model	CPU: 237*				
(maximum value)	*The value is the nu	mber of steps	in the lab	pel program, and is t	herefore stated as a	
	reference value. Fo	r details, refer	to the G	X Works2 Version1 (	Operation Manual (Simple	
	Project).					
Function description	1) By turning ON FB	_EN (Executio	on comm	and), the data for the	e number of write data is	
	written from the w	rite data start	device to	o the high speed tran	smission area of the	
	specified CPU nu	mber when th	e multiple	e CPU system is con	figured.	
	2) When the input va	alue is out of ra	ange, the	FB_ERROR output	turns ON, processing is	
	interrupted, and t	he error code	is stored	in ERROR_ID (Error	r code).	
	Refer to the error	code explana	tion secti	on for details.		

![](_page_27_Picture_5.jpeg)

Item	Description				
Compiling method	Macro type				
Restrictions and	1) The FB does not include error recovery processing. Program the error recovery				
precautions	processing separately in accordance with the required system operation.				
	2) The FB cannot be used in an interrupt program.				
	3) When two or more of these FBs are used, they cannot be executed simultaneously.				
	4) This FB uses index registers Z9 and Z8. Please do not use these index registers in an				
	interrupt program.				
FB operation type	Pulsed execution (1 scan execution type)				
Application example	Refer to Appendix - Application examples				
Timing chart	•Operation of I/O signals				
	[When operation completes without error] [When an error occurs]				
	FB_EN(Execution command)   FB_EN0(Execution status)   Multiple CPU high speed   TB_CROR(Error)   FB_EROR(Error code)   CMODULE error code)   FB_OK   Completed without error)   FB_ENO(Execution status)   Multiple CPU high speed   TB_EROR(Error code)   FB_OK   Completed without error)   FB_ENO(Execution status)   (Completed without error)   FB_ENO(Execution status)   Multiple CPU high speed   TB_EROR(Error code)   FB_OK (Completed without error) JUNIT_ERROR (Completed without error) JUNIT_ERROR (Module error code) O_UNIT_ERROR (Module error code) O_UNIT_ERROR (Module error code) O_UNIT_ERROR (Module error code) O_OCCDLUE Location Adduction Command Multiple CPU high speed Table Speed (Completed without error) JUNIT_ERROR (Module error code) O_OCCDLUE Completed Without error) O_UNIT_ERROR (Module error code) O_OCCDLUE Completed (Multiple CPU LS): underwoid)				
Relevant manuals	QCPU User's Manual (Multiple CPU System)				
	QCPU User's Manual (Hardware Design, Maintenance and Inspection)				

![](_page_28_Picture_1.jpeg)

Error codes				
Error code list				
Error code	Description			
10	The specified CPU number is not valid. Set a correct number, and turn OFF FB_EN and			
	then ON again.			
11	The write start address is not valid. Set a correct start address, and turn OFF FB_EN and			
	then ON again.			
12	The number of write data is not valid. Set the correct number of write data, and turn OFF			
	FB_EN and then ON again.			

# Labels

# ■Input labels

Name	Variable name	Data type	Setting range	Description
Execution command	FB_EN	В	ON, OFF	ON: The FB is activated.
				OFF: The FB is not
				activated.
CPU number	i_CPU_Number	W	1~4	Set the number of the
				CPU to write to the
				multiple CPU high speed
				transmission area.
Write start address	i_Top_Address	W	0~14335	Set the start address to
				which the data is written.
Write data start device	i_Data_Top	W	Valid device range	Set the start device that
				stores the data to be
				written.
No. of write data	i_Data_Num	W	1~14336	Set the number of data
				to be written.
				It must be
				1≤(i_Top_Address+i_Dat
				a_Num)≤14336.

# ■Output labels

Name	Variable name	Data type	Initial	Description
			value	

![](_page_29_Picture_6.jpeg)

Name	Variable name	Data type	Initial	Description
			value	
Execution status	FB_ENO	В	OFF	ON: Execution command is ON.
				OFF: Execution command is OFF.
Completed without	FB_OK	В	OFF	When ON, it indicates that the processing
error				is completed.
Error flag	FB_ERROR	В	OFF	When ON, it indicates that an error has
				occurred.
Error code	ERROR_ID	W	0	FB error code output.
Module error	o_UNIT_ERROR	В	OFF	When ON, it indicates that a module error
				has occurred in the CPU where the
				function is executed.
Module error code	o_UNIT_ERR_CODE	W	0	Store a code for an error that is occurring.
				The module errors include all diagnostic
				errors which occur in the CPU where the
				function is executed. For details on errors,
				refer to the troubleshooting in the
				corresponding CPU user's manual.

# **Processing description**

1) The data for the number of write data is written from the write data start device to the write start address of the multiple CPU high speed transmission area of the specified CPU number.

![](_page_30_Picture_3.jpeg)

![](_page_31_Figure_0.jpeg)

![](_page_31_Picture_1.jpeg)

# Version Upgrade History

Version	Date	Description
1.00A	2011/03/22	First edition

#### Note

This chapter includes information related to the M+CPU-Multi\_WriteHighSpeedArea function block.

It does not include information on restrictions of use such as combination with modules or programmable controller CPUs.

Before using any Mitsubishi products, please read all the relevant manuals.

![](_page_32_Picture_6.jpeg)

# Appendix 1 - Application Examples

Multiple CPU FB application examples

## System configuration

Power supply	Q13UDH	Q03UDE	CPU	CPU	Empty	<b>QY40</b>
module	CPU	CPU	(empty)	(empty)		(Y20~Y2F)
	(host)					

#### Device list

#### External output (checks)

	Device	FB function name	Application (ON details)
	Y20	Operation information	Operation information area read FB error
	Y21	area read	Module error
	Y22	Sustam area road	System area read FB error
	Y23	System area read	Module error
	Y24	l laan aatting good good	User setting area read FB error
F	Y25	User setting area read	Module error
	Y26	l la su a stillion sua suulta	User setting area write FB error
	Y27	User setting area write	Module error
	Y28 Multiple CPU high spe		High speed transmission area read FB error
	Y29	transmission area read	Module error
	Y2A	Multiple CPU high speed	High speed transmission area write FB error
	Y2B	transmission area write	Module error

Data register

Device	FB function name	Application (ON details)
D0	Operation information	Operation information area read FB error code
D1		Module error code
D2	alea leau	Operation information storage address
D20		System area read FB error code
D21	System area read	Module error code
D22		System area information storage address
D40		User setting area read FB error code
D41	User setting area read	Module error code
D42		User setting area information storage address
D60	User setting area write	User setting area write FB error code
D61		Module error code
D62		Write data start device
D80	Multinla CDU bish seasod	High speed transmission area read FB error code
D81	Multiple CPU high speed	Module error code
D82	transmission area reau	High speed transmission area information storage address
D100	Multinla CDU bish seas d	High speed transmission area write FB error code
D101	transmission area write	Module error code
D102		Write data start device

Relay		
Device	FB function name	Application (ON details)
M0	Onemation information	Operation information area read request
M1	operation information	Operation information area read FB ready
M2	area reau	Operation information area read complete
M3		System area read request
M4	System area read	System area read FB ready
M5		System area read complete
M6		User setting area read request
M7	User setting area read	User setting area read FB ready
M8		User setting area read complete
M9		User setting area write request
M10	User setting area write	User setting area write FB ready
M11		User setting area write complete
M12		High speed transmission area read request
M13	Multiple CPU high speed transmission area read Multiple CPU high speed transmission area write	High speed transmission area read FB ready
M14		High speed transmission area read complete
M15		High speed transmission area write request
M16		High speed transmission area write FB ready
M17		High speed transmission area write complete

![](_page_33_Picture_10.jpeg)

![](_page_34_Figure_0.jpeg)

#### M+CPU-Multi\_ReadCPUInfoArea (Operation information area read)

![](_page_34_Picture_2.jpeg)

#### M+CPU-Multi\_ReadSystemArea (System area read)

![](_page_35_Figure_1.jpeg)

![](_page_35_Picture_2.jpeg)

![](_page_36_Figure_0.jpeg)

#### M+CPU-Multi\_ReadUserSettingArea (User setting area read)

![](_page_36_Picture_2.jpeg)

![](_page_37_Figure_0.jpeg)

#### M+CPU-Multi\_WriteUserSettingArea (User setting area write)

![](_page_37_Picture_2.jpeg)

![](_page_38_Figure_0.jpeg)

M+CPU-Multi\_ReadHighSpeedArea (Multiple CPU high speed transmission area read)

![](_page_38_Picture_2.jpeg)

FBM-M050-A

![](_page_39_Figure_0.jpeg)

# M+CPU-Multi\_WriteHighSpeedArea (Multiple CPU high speed transmission area write)

![](_page_39_Picture_2.jpeg)