

SIEMENS

ICs for Consumer Electronics

MEGATEXT

Display Register Control Routines

Edition 10.94

MEGATEXT® Display Register Control Routines	
Revision History: Original Version 10.94	
Previous Releases:	
Page	Subjects (changes since last revision)

Data Classification

Maximum Ratings

Maximum ratings are absolute ratings; exceeding only one of these values may cause irreversible damage to the integrated circuit.

Characteristics

The listed characteristics are ensured over the operating range of the integrated circuit. Typical characteristics specify mean values expected over the production spread. If not otherwise specified, typical characteristics apply at $T_A = 25\text{ °C}$ and the given supply voltage.

Operating Range

In the operating range the functions given in the circuit description are fulfilled.

For detailed technical information about “**Processing Guidelines**” and “**Quality Assurance**” for ICs, see our “**Short Form Catalog**”.

Edition 10.94

This edition was realized using the software system FrameMaker®.

**Published by Siemens AG, Bereich Halbleiter, Marketing-Kommunikation,
Balanstraße 73, 81541 München**

© Siemens AG 1994. All Rights Reserved.

As far as patents or other rights of third parties are concerned, liability is only assumed for components, not for applications, processes and circuits implemented within components or assemblies.

The information describes the type of component and shall not be considered as assured characteristics.

Terms of delivery and rights to change design reserved.

For questions on technology, delivery and prices please contact the Semiconductor Group Offices in Germany or the Siemens Companies and Representatives worldwide (see address list).

Due to technical requirements components may contain dangerous substances. For information on the types in question please contact your nearest Siemens Office, Semiconductor Group.

Siemens AG is an approved CECC manufacturer.

Packing

Please use the recycling operators known to you. We can also help you - get in touch with your nearest sales office. By agreement we will take packing material back, if it is sorted. You must bear the costs of transport.

For packing material that is returned to us unsorted or which we are not obliged to accept, we shall have to invoice you for any costs incurred.

Contents	Page
1 Introduction	6
1.1 Environment	6
1.1.1 Hardware	6
1.1.2 Software	6
1.2 How to Use This Manual	6
1.3 MEGATEXT Memory Addresses	7
2 Module Description	9
2.1 Module Links	9
2.2 Include Files	9
2.3 External Calls	10
3 Subroutine Description	10
3.1 Character Display Word	10
3.1.1 GET_DISPLAY_WORD	10
3.1.2 SET_DISPLAY_WORD	11
3.2 Page Cursor Position Word	12
3.2.1 GET_PAGE_CURSOR_POSITION	12
3.2.2 SET_PAGE_CURSOR_POSITION	13
3.3 Sync Delay Word	13
3.3.1 GET_SDW_BYTE	13
3.3.2 SET_SDW_BYTE	14
3.3.3 GET_SDW	14
3.3.4 SET_SDW	15
3.4 Display Position Word	16
3.4.1 GET_DPW_BYTE	16
3.4.2 SET_DPW_BYTE	16
3.4.3 GET_DPW	17
3.4.4 SET_DPW	18
3.4.5 GET_ISDA_POSITION	19
3.4.6 SET_ISDA_POSITION	19
3.4.7 SET_SCREEN_ATTR_0	20
3.4.8 SET_SCREEN_ATTR_1	20
3.5 Page Position Word	21
3.5.1 GET_PPW_BYTE	21
3.5.2 SET_PPW_BYTE	21
3.5.3 GET_PPW	22
3.5.4 SET-PPW	23
3.5.5 SET_ISDA_BLOCK_2	24
3.5.6 SET_ISDA_BLOCK_3	24
3.6 Graphic Position Word	25
3.6.1 GET_GPW_BYTE	25
3.6.2 SET_GPW_BYTE	25
3.6.3 GET_GPW	26
3.6.4 SET_GPW	27
3.6.5 GET_GRAPHIC_POSITION	28

Contents (cont'd)	Page
3.6.6 SET_GRAPHIC_POSITION	28
3.6.7 SET_GRAPHIC_ZOOM_HORIZONTAL	29
3.6.8 SET_GRAPHIC_ZOOM_VERTICAL	29
3.7 Display Cursor Position Word	30
3.7.1 GET_DCPW_BYTE	30
3.7.2 SET_DCPW_BYTE	30
3.7.3 GET_DCPW	31
3.7.4 SET_DCPW	32
3.7.5 GET_DISPLAY_CURSOR_POSITION	33
3.7.6 SET_DISPLAY_CURSOR_POSITION	34
3.7.7 SET_CURSOR_MODE	34
3.7.8 SET_CURSOR_BLOCK	35
3.7.9 SET_CURSOR_UNDERLINE	35
3.7.10 SET_CURSOR_STEADY	36
3.7.11 SET_CURSOR_FLASH	36
3.7.12 SET_PAGE_CURSOR_ON	36
3.7.13 SET_PAGE_CURSOR_OFF	37
3.7.14 SET_DISPLAY_CURSOR_ON	37
3.7.15 SET_DISPLAY_CURSOR_OFF	38
3.7.16 SET_PIXEL_CURSOR_FORMAT	38
3.8 Termination Display Word	39
3.8.1 GET_TDW_BYTE	39
3.8.2 SET_TDW_BYTE	39
3.8.3 GET_TDW	40
3.8.4 SET_TDW	41
3.9 Box Mask Register	42
3.9.1 GET_BOXMR_0_BYTE	42
3.9.2 SET_BOXMR_0_BYTE	42
3.9.3 GET_BOXMR_0	43
3.9.4 SET_BOXMR_0	44
3.9.5 GET_BOXMR_1_BYTE	45
3.9.6 SET_BOXMR_1_BYTE	45
3.9.7 GET_BOXMR_1	46
3.9.8 SET_BOXMR_1	47
3.10 Box Display Word	48
3.10.1 GET_BOXDW_0_BYTE	48
3.10.2 SET_BOXDW_0_BYTE	48
3.10.3 GET_BOXDW_0	49
3.10.4 SET_BOXDW_0	50
3.10.5 GET_BOXDW_1_BYTE	51
3.10.6 SET_BOXDW_1_BYTE	51
3.10.7 GET_BOXDW_1	52
3.10.8 SET_BOXDW_1	53
3.11 Inner Screen Mask Register	54
3.11.1 GET_ISMR_0_BYTE	54

Contents (cont'd)	Page
3.11.2 SET_ISMR_0_BYTE	54
3.11.3 GET_ISMR_0	55
3.11.4 SET_ISMR_0	56
3.11.5 GET_ISMR_1_BYTE	57
3.11.6 SET_ISMR_1_BYTE	57
3.11.7 GET_ISMR_1	58
3.11.8 SET_ISMR_1	59
3.12 Inner Screen Display Word	60
3.12.1 GET_ISDW_0_BYTE	60
3.12.2 SET_ISDW_0_BYTE	60
3.12.3 GET_ISDW_0	61
3.12.4 SET_ISDW_0	62
3.12.5 GET_ISDW_1_BYTE	63
3.12.6 SET_ISDW_1_BYTE	63
3.12.7 GET_ISDW_1	64
3.12.8 SET_ISDW_1	65
3.13 Outer Screen Mask Register	66
3.13.1 GET_OSMR_BYTE	66
3.13.2 SET_OSMR_BYTE	66
3.13.3 GET_OSMR	67
3.13.4 SET_OSMR	68
3.14 Outer Screen Display Word	69
3.14.1 GET OSDW_BYTE	69
3.14.2 SET OSDW_BYTE	69
3.14.3 GET OSDW	70
3.14.4 SET OSDW	71
3.15 Color Lookup Tables	72
3.15.1 SET_CLUT_COLOR	72
3.16 Row Attribute Register	73
3.16.1 GET_RATT_BYTE	73
3.16.2 SET_RATT_BYTE	73
3.16.3 GET_RATT	74
3.16.4 SET_RATT	75
4 Subroutines Overview	77
5 Abbreviations	80
6 Literature	82
7 Index	83

MEGATEXT® and SIESTA® are registered trademarks of Siemens AG.

Purchase of SIEMENS I²C components conveys a licence under the Philips' I²C patent to use the components in the I²C system provided the system conforms to the I²C specifications defined by Philips.
Copyright Philips 1983.

1 Introduction

SIESTA® MEGATEXT software is a Siemens software tool to provide the programmer of the SDA 5273 (MEGATEXT) an easy access to basic functions. The following introductory chapter gives an overview of the development environment and how to use this manual.

1.1 Environment

It is assumed that your MEGATEXT software is written in 8051 assembler language. This is the most effective way to write software with optimized program and data memory consumption.

1.1.1 Hardware

The software development for 8051 based controllers should be done on an IBM PCXT, AT or compatible. It is recommended to use at least 512 Kbytes of conventional memory. If more memory or a RAM disk are available, the assembly time may decrease. For testing the software, an in-circuit emulator (e.g. KONTRON KSC X51) provides an optimum of efficiency.

1.1.2 Software

The following software is needed to develop assembler software:

- INTEL AEDIT program editor (or any other program editor)
- INTEL ASM51 assembler
- INTEL RL51 linker

If an assembler or linker other than an Intel is used, the source files must be adapted (assembler and linker control commands might not work with other than Intel tools).

1.2 How to Use This Manual

The main part of this manual gives information about subroutines contained in a module named 'MTXD'. The source code of this module is located in a file named 'MTXDISPL.A51'.

The subroutines are described in functional groups. A table of subroutines in alphabetic order is given in Chapter 4.

Each subroutine is classified by its name and by a description of input and output parameters. Generally, the accumulator, registers R0 – R7 and the carry bit are used for parameter passing.

If it is necessary to describe the single bits of a byte, the following format is used:

b7	b6	b5	b4	b3	b2	b1	b0
-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------

b7 – b0 <significance>

The bit at the lefthand side of the figure (b7) is always regarded to be the most significant bit (MSB). The bit at the righthand side of the figure (b0) always represents the least significant bit (LSB).

Numbers may be shown in three different formats: decimal, hexadecimal or binary. Decimal numbers have no suffix, e.g. 1, 34, 255, 12345 are decimal numbers. Hexadecimal numbers always have an 'H' suffix. For example, 12_H, 0FF_H, 12AA_H are hexadecimal numbers. Binary numbers use a 'B' as a suffix: 00101100_B, 11111111_B are binary numbers.

A list of abbreviations used is given in Chapter 5. Chapter 6 shows literature on Siemens MEGATEXT. Chapter 7 contains an alphabetic index and will help you to find information in this manual quickly.

1.3 MEGATEXT Memory Addresses

MEGATEXT is able to address 24 Kbytes of its internal RAM as well as up to 2 Mbytes of external DRAM. For each memory type, internal or external, a different address type is used. As these address formats use packed data to address the different logical units (block, byte position, chapter, row, column), two corresponding formats (user formats) are defined in the MTXD module which allow the programmer of MEGATEXT to use more convenient addressing. The following tables describe the MEGATEXT and the user address formats in detail.

The byte at the top of the list is always the most significant byte. This is the byte which is stored at the lowest address in controller memory. All bytes must be stored in sequential order.

User address format for internal MEGATEXT RAM:

0	0	0	0	0	BP2	BP1	BP0
---	---	---	---	---	-----	-----	-----

0	0	0	0	0	0	BL1	BL0
---	---	---	---	---	---	-----	-----

0	0	0	R4	R3	R2	R1	R0
---	---	---	----	----	----	----	----

0	0	C5	C4	C3	C2	C1	C0
---	---	----	----	----	----	----	----

The bits have the following significance:

BPn	Byte position (binary number, 0 – 5)
BLn	Block number (binary number, 0 – 3)
Rn	Row number (binary number, 0 – 25)
Cn	Column number (binary number, 0 – 39)

MEGATEXT address format for internal MEGATEXT RAM:

0	0	0	0	BY5	BY4	BY3	BY2
BY1	BY0	0	BL1	BL0	R4	R3	R2
R1	R0	C5	C4	C3	C2	C1	C0

The bits have the following significance:

BYn	Byte position (decimal number, 0 – 5), only one of the BYn bits must be set to '1', the other ones must be set to '0'.
BLn	Block number (binary number, 0 – 3)
Rn	Row number (binary number, 0 – 25)
Cn	Column number (binary number, 0 – 39)

User address format for external MEGATEXT RAM:

0	0	0	0	0	B10	B9	B8
B7	B6	B5	B4	B3	B2	B1	B0
0	0	0	R4	R3	R2	R1	R0
0	0	C5	C4	C3	C2	C1	C0

The bits have the following significance:

Bn	Chapter number (binary number, 0 – 511)
Rn	Row number (binary number, 0 – 25)
Cn	Column number (binary number, 0 – 39)

MEGATEXT address format for external MEGATEXT RAM:

1	0	B10	B9	B8	B7	B6	B5
B4	B3	B2	B1	B0	R4	R3	R2
R1	R0	C5	C4	C3	C2	C1	C0

The bits have the following significance:

Bn	Chapter number (binary number, 0 – 2048)
Rn	Row number (binary number, 0 – 25)
Cn	Column number (binary number, 0 – 39)

2 Module Description

The MTXDISPL.A51 file contains the source code of the MTXD module: subroutines to execute basic functions and procedures for the Siemens MEGATEXT display generator.

2.1 Module Links

The MTXD module is unable to operate as a standalone program. Because of system modularity and flexibility it must be linked with some modules which are also contained in SIESTA MEGATEXT software. The source codes for these modules are contained in the following files:

- M3LHBASE.A51 (basic routines for M3L-Bus transmission, using 3-wire bus protocol).
- MTXBASIC.A51 (MEGATEXT register control routines, see [6]).

Instead of the M3LH module a programmer could decide to use either the M3LS (M3L-Bus driver using a software interface) or the IICH or IICS module (I²C Bus drivers using hardware or software interface). Contact Siemens HL UE AT if you are interested in using other than the M3LH module which is contained on your distribution disk.

2.2 Include Files

MTXDISPL.A51 uses include files to define constant values and external symbols. The following include files (included by ASM51) must be contained in the same directory as MTXDISPL.A51 when working with the Intel assembler:

- REGISTER.INC (defines the names and addresses of the microcontroller's special-function registers. It is recommended to use one of the files contained on the Siemens SIESTA Software Utilities diskette 'SFR Definitions'). Your distribution disk contains a REGISTER.INC file for an SDA 30C162 microcontroller.
- MEGATEXT.INC (defines constant values for Siemens MEGATEXT, e.g. register addresses and command numbers).

2.3 External Calls

SIESTA MEGATEXT software offers an include file called MTXDISPL.INC which declares all public symbols of the MTXD module. So the line `$include (MTXDISPL.INC)` in the user's module(s) provides easy use of MEGATEXT routines. No further declaration of external symbols is necessary. However, if the number of external symbols in the user's module exceeds the capability of the linker (error message 'TOO MANY SYMBOLS'), it is recommended not to use the MTXDISPL.INC file but to declare the external symbols especially for the user module. So only the symbols which are really used in the module can be declared and the number of external symbols decreases.

To call any one of the subroutines of MTXDISPL.A51 from another module, the user has only to load the subroutine input parameters into the appropriate registers and then insert the following command: `CALL <subroutine name>`.

Each subroutine may modify the contents of the accumulator, the registers R0 through R7, the data pointer (DPTR), the program status word (PSW) and the B register.

3 Subroutine Description

The following chapter describes all subroutines of the MTXD module. The subroutine descriptions are divided into groups concerning the different display registers of MEGATEXT. At the end of each description there is an overview of the display register bits which are influenced by the routine.

3.1 Character Display Word

This subchapter describes routines which influence the character display word of Siemens MEGATEXT.

3.1.1 GET_DISPLAY_WORD

Name	GET_DISPLAY_WORD
Function	Reads a complete display word, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R5 – R7	Address of display word to read in user address format (block, row and column number). R5 contains the block number, R6 contains the row number and R7 contains the column number.
R0	Pointer to first byte of the destination address (type: IDATA). The 5 bytes of the display word are copied in sequential order (byte position 0 is copied first) to an IDATA-memory block, beginning at the address given by R0. If R0 is set to –1, the destination address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the destination address.

Input Parameters (cont'd)

DPTR	Pointer to first byte of the destination address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the display word are copied in sequential order (byte position 0 is copied first) to an XDATA-memory block, beginning at the address given by DPTR.
-------------	--

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

The GET_DISPLAY_WORD routine is intended to be used mainly to read a character display word from the basic display area. However, it can serve also to read other display words, e.g. from the outer screen display area or from the inner screen display/mask registers.

3.1.2 SET_DISPLAY_WORD

Name	SET_DISPLAY_WORD
Function	Writes a complete display word, consisting of 5 bytes (byte positions 0 – 4) to the internal MEGATEXT memory.

Input Parameters

R5 – R7	Address of display word to write in user address format (block, row and column number). R5 contains the block number, R6 contains the row number and R7 contains the column number.
R0	Pointer to first byte of the source address (type: IDATA). The 5 bytes of the display word are copied in sequential order (byte position 0 is copied first) from an IDATA-memory block, beginning at the address given by R0, to the MEGATEXT display word. Byte position 0 must be stored at the lowest IDATA address. If R0 is set to –1, the source address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to the first byte of the source address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the display word are copied in sequential order (byte position 0 is copied first) from an XDATA-memory block, beginning at the address given by R0, to the MEGATEXT display word. Byte position 0 must be stored at the lowest XDATA address.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

The SET_DISPLAY_WORD routine is intended to be used mainly to write a character display word to the basic display area. However, it can serve also to write other display words, e.g. to the outer screen display area or to the inner screen display/mask registers.

3.2 Page Cursor Position Word

This subchapter describes routines which read or modify the page cursor position word of MEGATEXT.

3.2.1 GET_PAGE_CURSOR_POSITION

Name	GET_PAGE_CURSOR_POSITION
Function	Reads the actual position of the page cursor. The page cursor is always located in the ISDA.

Output Parameters

R6	Row number where page cursor is actually located.
R7	Column number where page cursor is actually located.
CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.

Display Register

PAGE CURSOR POSITION WORD

Display Register Bits

PCPWC

PCPWR

3.2.2 SET_PAGE_CURSOR_POSITION

Name	SET_PAGE_CURSOR_POSITION
Function	Sets the position of the page cursor in the ISDA.

Input Parameters

R6	Row number where the page cursor is set to. Allowed input range: 0 – 25.
R7	Column number where the page cursor is set to. Allowed input range: 0 – 39. If row number is set to 25, only columns 0 – 23 are allowed.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

PAGE CURSOR POSITION WORD

Display Register Bits

PCPWC

PCPWR

3.3 Sync Delay Word

This subchapter describes routines which affect the sync delay word of Siemens MEGATEXT.

3.3.1 GET_SDW_BYTE

Name	GET_SDW_BYTE
Function	Reads one byte of the sync delay word.

Input Parameters

R6	Byte position from which the byte is read. Allowed input range: 0 – 4.
-----------	--

Output Parameters

ACC	Byte of the sync delay word.
CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.

Display Register

SYNC DELAY WORD

3.3.2 SET_SDW_BYTE

Name	SET_SDW_BYTE
Function	Writes one byte of the sync delay word.

Input Parameters

R4	Byte position to which the byte is written. Allowed input range: 0 – 4.
ACC	New byte contents of the sync delay word.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Registers

SYNC DELAY WORD

3.3.3 GET_SDW

Name	GET_SDW
Function	Reads the complete sync delay word, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the destination address (type: IDATA). The 5 bytes of the sync delay word are copied in sequential order (byte position 0 is copied first) to an IDATA-memory block, beginning at the address given by R0. If R0 is set to –1, the destination address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to the first byte of the destination address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the sync delay word are copied in sequential order (byte position 0 is copied first) to an XDATA-memory block, beginning at the address given by DPTR.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

SYNC DELAY WORD

Display Register Bits

SDWC

SDWL

SDWR

LLC

FLC

3.3.4 SET_SDW

Name	SET_SDW
Function	Writes the complete sync delay word, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the source address (type: IDATA). The 5 bytes of the sync delay word are copied in sequential order (byte position 0 is copied first) from an IDATA-memory block, beginning at the address given by R0, to the MEGATEXT sync delay word. Byte position 0 must be stored at the lowest IDATA address. If R0 is set to –1, the source address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the source address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the sync delay word are copied in sequential order (byte position 0 is copied first) from an XDATA-memory block, beginning at the address given by R0, to the MEGATEXT sync display word. Byte position 0 must be stored at the lowest XDATA address.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

SYNC DELAY WORD

Display Register Bits

SDWC

SDWL

SDWR

LLC

FLC

3.4 Display Position Word

This subchapter describes routines which influence the display position word of Siemens MEGATEXT.

3.4.1 GET_DPW_BYTE

Name	GET_DPW_BYTE
Function	Reads one byte of the display position word.

Input Parameters

R4	Byte position from which the byte is read. Allowed input range: 0 – 4.
-----------	--

Output Parameters

ACC	Byte of the display position word.
CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.

Display Register

DISPLAY POSITION WORD

3.4.2 SET_DPW_BYTE

Name	SET_DPW_BYTE
Function	Writes one byte into the display position word.

Input Parameters

R4	Byte position to which the byte is written. Allowed input range: 0 – 4.
ACC	New byte contents of the display position word.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

DISPLAY POSITION WORD

3.4.3 GET_DPW

Name	GET_DPW
Function	Reads the complete display position word, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the destination address (type: IDATA). The 5 bytes of the display position word are copied in sequential order (byte position 0 is copied first) to an IDATA-memory block, beginning at the address given by R0. If R0 is set to –1, the destination address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the destination address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the display position word are copied in sequential order (byte position 0 is copied first) to an XDATA-memory block, beginning at the address given by DPTR.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

DISPLAY POSITION WORD

Display Register Bits

DPWC
DPWL
DPWR
DWD
DSC
DHD
SAS
LNCL
LNSA

3.4.4 SET_DPW

Name	SET_DPW
Function	Writes the complete display position word, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the source address (type: IDATA). The 5 bytes of the display position word are copied in sequential order (byte position 0 is copied first) from an IDATA-memory block, beginning at the address given by R0, to the MEGATEXT display position word. Byte position 0 must be stored at the lowest IDATA address. If R0 is set to –1, the source address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the source address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the display position word are copied in sequential order (byte position 0 is copied first) from an XDATA-memory block, beginning at the address given by R0, to the MEGATEXT display position word. Byte position 0 must be stored at the lowest XDATA address.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

DISPLAY POSITION WORD

Display Register Bits

DPWC
DPWL
DPWR
DWD
DSC
DHD
SAS
LNCL
LNSA

3.4.5 GET_ISDA_POSITION

Name	GET_ISDA_POSITION
Function	Reads the actually adjusted ISDA position from the MEGATEXT display position word.

Output Parameters

R5	Row position. Gives the actually adjusted vertical position in rows.
R6	Line position. Gives the actually adjusted vertical position in TV lines. This position is used as an offset to the row position.
R7	Column position. Gives the actually adjusted horizontal position in columns.
CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.

Display Register

DISPLAY POSITION WORD

Display Register Bits

DPWC
DPWL
DPWR

3.4.6 SET_ISDA_POSITION

Name	SET_ISDA_POSITION
Function	Sets the ISDA-position parameters in the MEGATEXT display position word.

Input Parameters

R5	Row position. Allowed input range: 0 – 31. Defines the vertical position in rows.
R6	Line position. Allowed input range: 0 – 15. Defines the vertical position in TV lines. This position is used as an offset to the row position.
R7	Column position. Allowed input range: 0 – 63. Defines the horizontal position in columns.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Registers

DISPLAY POSITION WORD

Display Register Bits

DPWC

DPWL

DPWR

3.4.7 SET_SCREEN_ATTR_0

Name	SET_SCREEN_ATTR_0
Function	Selects the BOXMR0, BOXDW0, ISMR0 and ISDW0 registers for defining the screen attributes. BOXMR1, BOXDW1, ISMR1 and ISDW1 are ignored.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

DISPLAY POSITION WORD

Display Register Bits

SAS

3.4.8 SET_SCREEN_ATTR_1

Name	SET_SCREEN_ATTR_1
Function	Selects the BOXMR1, BOXDW1, ISMR1 and ISDW1 registers for defining the screen attributes. BOXMR0, BOXDW0, ISMR0 and ISDW0 are ignored.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

DISPLAY POSITION WORD

Display Register Bits

SAS

3.5 Page Position Word

This subchapter describes routines which control the page position word of Siemens MEGATEXT.

3.5.1 GET_PPW_BYTE

Name	GET_PPW_BYTE
Function	Reads one byte of the page position word.

Input Parameters

R4	Byte position from which the byte is read. Allowed input range: 0 – 4.
-----------	--

Output Parameters

ACC	Byte of the page position word.
CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.

Display Register

PAGE POSITION WORD

3.5.2 SET_PPW_BYTE

Name	SET_PPW_BYTE
Function	Writes one byte into the page position word.

Input Parameters

R4	Byte position to which the byte is written. Allowed input range: 0 – 4.
ACC	New byte contents of the page position word.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

PAGE POSITION WORD

3.5.3 GET_PPW

Name	GET_PPW
Function	Reads the complete page position word, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the destination address (type: IDATA). The 5 bytes of the page position word are copied in sequential order (byte position 0 is copied first) to an IDATA-memory block, beginning at the address given by R0. If R0 is set to – 1, the destination address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the destination address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the page position word are copied in sequential order (byte position 0 is copied first) to an XDATA-memory block, beginning at the address given by DPTR.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

PAGE POSITION WORD

Display Register Bits

PPWC
 PPWL
 PPWR
 SOH
 SOV
 SRM0 – SRM1
 BES
 HR0
 HR1
 HR23
 HR24
 DHP
 PLCC0 – PLCC1
 PCHC0 – PCHC1
 DWP
 PLSC0 – PLSC1

3.5.4 SET-PPW

Name	SET_PPW
Function	Writes the complete page position word, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the source address (type: IDATA). The 5 bytes of the page position word are copied in sequential order (byte position 0 is copied first) from an IDATA-memory block, beginning at the address given by R0, to the MEGATEXT page position word. Byte position 0 must be stored at the lowest IDATA address. If R0 is set to – 1, the source address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the source address (type: XDATA). This input parameter is only valid if R0 is set to -1, otherwise it is ignored. The 5 bytes of the page position word are copied in sequential order (byte position 0 is copied first) to an XDATA-memory block, beginning at the address given by R0, to the MEGATEXT page position word. Byte position 0 must be stored at the lowest XDATA address.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

PAGE POSITION WORD

Display Register Bits

PPWC
 PPWL
 PPWR
 SOH
 SOV
 SRM0 – SRM1
 BES
 HR0
 HR1
 HR23
 HR24
 DHP
 PLCC0 – PLCC1

PCHC0 – PCHC1

DWP

PLSC0 – PLSC1

3.5.5 SET_ISDA_BLOCK_2

Name	SET_ISDA_BLOCK_2
Function	Sets internal MEGATEXT memory block 2 to be displayed in the ISDA.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

PAGE POSITION WORD

Display Register Bits

BES

3.5.6 SET_ISDA_BLOCK_3

Name	SET_ISDA_BLOCK_3
Function	Sets internal MEGATEXT memory block 3 to be displayed in the ISDA.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

PAGE POSITION WORD

Display Register Bits

BES

3.6 Graphic Position Word

This subchapter describes routines to control the graphic position word of Siemens MEGATEXT.

3.6.1 GET_GPW_BYTE

Name	GET_GPW_BYTE
Function	Reads one byte of the graphic position word.

Input Parameters

R4	Byte position from which the byte is read. Allowed input range: 0 – 4.
-----------	---

Output Parameters

ACC	Byte of the graphic position word.
CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.

Display Register

GRAPHIC POSITION WORD

3.6.2 SET_GPW_BYTE

Name	SET_GPW_BYTE
Function	Writes one byte into the graphic position word.

Input Parameters

R4	Byte position to which the byte is written. Allowed input range: 0 – 4.
ACC	New byte contents of the graphic position word.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

GRAPHIC POSITION WORD

3.6.3 GET_GPW

Name	GET_GPW
Function	Reads the complete graphic position word, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the destination address (type: IDATA). The 5 bytes of the graphic position word are copied in sequential order (byte position 0 is copied first) to an IDATA-memory block, beginning at the address given by R0. If R0 is set to –1, the destination address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the destination address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the graphic position word are copied in sequential order (byte position 0 is copied first) to an XDATA-memory block, beginning at the address given by DPTR.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

GRAPHIC POSITION WORD

Display Register Bits

GPWC
GPWL
GPWR
GRZF0 – GRZF3
GRSX0 – GRSX1
GRSY0 – GRSY2
GRSZ0 – GRSZ1
GRM0 – GRM1
GRSP

3.6.4 SET_GPW

Name	SET_GPW
Function	Writes the complete graphic position word, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the source address (type: IDATA). The 5 bytes of the graphic position word are copied in sequential order (byte position 0 is copied first) from an IDATA-memory block, beginning at the address given by R0, to the MEGATEXT graphic position word. Byte position 0 must be stored at the lowest IDATA address. If R0 is set to –1, the source address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the source address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the graphic position word are copied in sequential order (byte position 0 is copied first) from an XDATA-memory block, beginning at the address given by R0, to the MEGATEXT graphic position word. Byte position 0 must be stored at the lowest XDATA address.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

GRAPHIC POSITION WORD

Display Register Bits

GPWC
GPWL
GPWR
GRZF0 – GRZF3
GRSX0 – GRSX1
GRSY0 – GRSY2
GRSZ0 – GRSZ1
GRM0 – GRM1
GRSP

3.6.5 GET_GRAPHIC_POSITION

Name	GET_GRAPHIC_POSITION
Function	Reads the actually adjusted position of the graphic field from the MEGATEXT graphic position word.

Output Parameters

R5	Row position. Gives the actually adjusted vertical position in rows.
R6	Line position. Gives the actually adjusted vertical position in TV lines. This position is used as an offset to the row position.
R7	Column position. Gives the actually adjusted horizontal position in columns.
CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.

Display Register

GRAPHIC POSITION WORD

Display Register Bits

GPWC
GPWL
GPWR

3.6.6 SET_GRAPHIC_POSITION

Name	SET_GRAPHIC_POSITION
Function	Sets the graphic position parameters in the MEGATEXT graphic position word.

Input Parameters

R5	Row position. Allowed input range: 0 – 31. Defines the vertical position in rows.
R6	Line position. Allowed input range: 0 – 15. Defines the vertical position in TV lines. This position is used as an offset to the row position.
R7	Column position. Allowed input range: 0 – 63. Defines the horizontal position in columns.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

GRAPHIC POSITION WORD

Display Register Bits

GPWC

GPWL

GPWR

3.6.7 SET_GRAPHIC_ZOOM_HORIZONTAL

Name	SET_GRAPHIC_ZOOM_HORIZONTAL
Function	Sets the zoom factor for horizontal stretching of the graphic field.

Input Parameters

ACC	Zoom factor code. Allowed input range: 0 – 2. The following zoom factors are used: ACC = 0: zoom factor is 1 (normal width). ACC = 1: zoom factor is 2 (double width). ACC = 2: zoom factor is 4 (quadruple width).
------------	--

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

GRAPHIC POSITION WORD

Display Register Bits

GRZF0 – GRZF1

3.6.8 SET_GRAPHIC_ZOOM_VERTICAL

Name	SET_GRAPHIC_ZOOM_VERTICAL
Function	Sets the zoom factor for vertical stretching of the graphic field.

Input Parameters

ACC	Zoom factor code. Allowed input range: 0 – 2. The following zoom factors are used: ACC = 0: zoom factor is 1 (normal height). ACC = 1: zoom factor is 2 (double height). ACC = 2: zoom factor is 4 (quadruple height).
------------	---

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

GRAPHIC POSITION WORD

Display Register Bits

GRZF2 – GRZF3

3.7 Display Cursor Position Word

This subchapter describes routines which influence the display cursor position word of Siemens MEGATEXT.

3.7.1 GET_DCPW_BYTE

Name	GET_DCPW_BYTE
Function	Reads one byte of the display cursor position word.

Input Parameters

R4	Byte position from which the byte is read. Allowed input range: 0 – 4.
-----------	--

Output Parameters

ACC	Byte of the display cursor position word.
CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.

Display Register

DISPLAY CURSOR POSITION WORD

3.7.2 SET_DCPW_BYTE

Name	SET_DCPW_BYTE
Function	Writes one byte into the display cursor position word.

Input Parameters

R4	Byte position to which the byte is written. Allowed input range: 0 – 4.
ACC	New byte contents of the display cursor position word.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

DISPLAY CURSOR POSITION WORD

3.7.3 GET_DCPW

Name	GET_DCPW
Function	Reads the complete display cursor position word, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the destination address (type: IDATA). The 5 bytes of the display cursor position word are copied in sequential order (byte position 0 is copied first) to an IDATA-memory block, beginning at the address given by R0. If R0 is set to –1, the destination address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the destination address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the display cursor position word are copied in sequential order (byte position 0 is copied first) to an XDATA-memory block, beginning at the address given by DPTR.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

DISPLAY CURSOR POSITION WORD

Display Register Bits

DCPWP
 DCPWC
 DCPWL
 DCPWR
 CM0 – CM1
 CF0 – CF1
 CS
 PCON
 DCON
 PCF0 – PCF3

3.7.4 SET_DCPW

Name	SET_DCPW
Function	Writes the complete display cursor position word, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the source address (type: IDATA). The 5 bytes of the display cursor position word are copied in sequential order (byte position 0 is copied first) from an IDATA-memory block, beginning at the address given by R0, to the MEGATEXT display cursor position word. Byte position 0 must be stored at the lowest IDATA address. If R0 is set to –1, the source address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the source address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the display cursor position word are copied in sequential order (byte position 0 is copied first) from an XDATA-memory block, beginning at the address given by R0, to the MEGATEXT display cursor position word. Byte position 0 must be stored at the lowest XDATA address.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

DISPLAY CURSOR POSITION WORD

Display Register Bits

DCPWP
DCPWC
DCPWL
DCPWR
CM0 – CM1
CF0 – CF1
CS
PCON
DCON
PCF0 – PCF3

3.7.5 GET_DISPLAY_CURSOR_POSITION

Name	GET_DISPLAY_CURSOR_POSITION
Function	Reads the actually adjusted position of the display cursor from the MEGATEXT display cursor position word.

Output Parameters

R4	Row position. Gives the actually adjusted vertical position in rows.
R5	Line position. Gives the actually adjusted vertical position in TV lines. This position is used as an offset to the row position.
R6	Column position. Gives the actually adjusted horizontal position in columns.
R7	Pixel position. Gives the actually adjusted horizontal position in pixels. This position is used as an offset to the column position.
CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.

Display Register

DISPLAY CURSOR POSITION WORD

Display Register Bits

DCPWP
DCPWC
DCPWL
DCPWR

3.7.6 SET_DISPLAY_CURSOR_POSITION

Name	SET_DISPLAY_CURSOR_POSITION
Function	Sets the display cursor position parameters in the MEGATEXT display cursor position word.

Input Parameters

R4	Row position. Allowed input range: 0 – 31. Defines the vertical position in rows.
R5	Line position. Allowed input range: 0 – 15. Defines the vertical position in TV lines. This position is used as an offset to the row position.
R6	Column position. Allowed input range: 0 – 63. Defines the horizontal position in columns.
R7	Pixel position. Allowed input range: 0 – 15. Defines the horizontal position in pixels. This position is used as an offset to the column position.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

DISPLAY CURSOR POSITION WORD

Display Register Bits

DCPWP
DCPWC
DCPWL
DCPWR

3.7.7 SET_CURSOR_MODE

Name	SET_CURSOR_MODE
Function	Sets the display cursor mode.

Input Parameters

ACC	Cursor mode. Allowed input range: 0 – 2. ACC = 0: change foreground to background. ACC = 1: change foreground to next CLUT. ACC = 2: exchange foreground and background.
------------	---

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

DISPLAY CURSOR POSITION WORD

Display Register Bits

CM0 – CM1

3.7.8 SET_CURSOR_BLOCK

Name	SET_CURSOR_BLOCK
Function	Sets the character-related cursor to block format.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

DISPLAY CURSOR POSITION WORD

Display Register Bits

CF0 – CF1

3.7.9 SET_CURSOR_UNDERLINE

Name	SET_CURSOR_UNDERLINE
Function	Sets the character-related cursor to underline format.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

DISPLAY CURSOR POSITION WORD

Display Register Bits

CF0 – CF1

3.7.10 SET_CURSOR_STEADY

Name	SET_CURSOR_STEADY
Function	Sets the character-related cursor to steady format. Cursor flashing is switched off.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

DISPLAY CURSOR POSITION WORD

Display Register Bits

CS

3.7.11 SET_CURSOR_FLASH

Name	SET_CURSOR_FLASH
Function	Sets the character-related cursor to flash format. Cursor flashing is switched on.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

DISPLAY POSITION WORD

Display Register Bits

CS

3.7.12 SET_PAGE_CURSOR_ON

Name	SET_PAGE_CURSOR_ON
Function	Sets the page cursor on (active).

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

DISPLAY CURSOR POSITION WORD

Display Register Bits

PCON

3.7.13 SET_PAGE_CURSOR_OFF

Name	SET_PAGE_CURSOR_OFF
Function	Sets the page cursor off (passive).

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

DISPLAY CURSOR POSITION WORD

Display Register Bits

PCON

3.7.14 SET_DISPLAY_CURSOR_ON

Name	SET_DISPLAY_CURSOR_ON
Function	Sets the display cursor on (active).

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

DISPLAY CURSOR POSITION WORD

Display Register Bits

DCON

3.7.15 SET_DISPLAY_CURSOR_OFF

Name	SET_DISPLAY_CURSOR_OFF
Function	Sets the display cursor off (passive).

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

DISPLAY CURSOR POSITION WORD

Display Register Bits

DCON

3.7.16 SET_PIXEL_CURSOR_FORMAT

Name	SET_PIXEL_CURSOR_FORMAT
Function	Sets the format of the pixel cursor or switches the pixel cursor off.

Input Parameters

ACC	Pixel cursor format. Allowed input range: 0 – 4. ACC = 0: arrow pointing to the right. ACC = 1: arrow pointing to the home position. ACC = 2: arrow pointing to the bottom. ACC = 3: frame around one character. ACC = 4: pixel cursor off.
------------	--

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

DISPLAY CURSOR POSITION WORD

Display Register Bits

PCF0 – PCF3

3.8 Termination Display Word

This subchapter describes routines which affect the termination display word of Siemens MEGATEXT.

3.8.1 GET_TDW_BYTE

Name	GET_TDW_BYTE
Function	Reads one byte of the termination display word.

Input Parameters

R4	Byte position from which the byte is read. Allowed input range: 0 – 4.
-----------	--

Output Parameters

ACC	Byte of the termination display word.
CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.

Display Register

TERMINATION DISPLAY WORD

3.8.2 SET_TDW_BYTE

Name	SET_TDW_BYTE
Function	Writes one byte into the termination display word.

Input Parameters

R4	Byte position to which the byte is written. Allowed input range: 0 – 4.
ACC	New byte contents of the termination display word.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

TERMINATION DISPLAY WORD

3.8.3 GET_TDW

Name	GET_TDW
Function	Reads the complete termination display word, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the destination address (type: IDATA). The 5 bytes of the termination display word are copied in sequential order (byte position 0 is copied first) to an IDATA-memory block, beginning at the address given by R0. If R0 is set to –1, the destination address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the destination address (type: XDATA). This input parameter is only valid if R0 is set to -1, otherwise it is ignored. The 5 bytes of the termination display word are copied in sequential order (byte position 0 is copied first) to an XDATA-memory block, beginning at the address given by DPTR.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

TERMINATION DISPLAY WORD

Display Register Bits

TB0 – TB8
 TUS
 TUH
 TDW
 TCO
 TTRB
 TTRF
 TBX
 TBC0 – TBC4
 TFC0 – TFC4
 TF0 – TF3
 TIC
 TDD0 – TDD4
 TDM0 – TDM1
 TUC

3.8.4 SET_TDW

Name	SET_TDW
Function	Writes the complete termination display word, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the source address (type: IDATA). The 5 bytes of the termination display word are copied in sequential order (byte position 0 is copied first) from an IDATA-memory block, beginning at the address given by R0, to the MEGATEXT termination display word. Byte position 0 must be stored at the lowest IDATA address. If R0 is set to –1, the source address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the source address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the termination display word are copied in sequential order (byte position 0 is copied first) from an XDATA-memory block, beginning at the address given by R0, to the MEGATEXT termination display word. Byte position 0 must be stored at the lowest XDATA address.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

TERMINATION DISPLAY WORD

Display Register Bits

TB0 – TB8
 TUS
 TUH
 TDW
 TCO
 TTRB
 TTRF
 TBX
 TBC0 – TBC4
 TFC0 – TFC4
 TF0 – TF3
 TIC

TDD0 – TDD4
TDM0 – TDM1
TUC

3.9 Box Mask Register

This subchapter describes routines to control the two box mask registers of Siemens MEGATEXT.

3.9.1 GET_BOXMR_0_BYTE

Name	GET_BOXMR_0_BYTE
Function	Reads one byte of the box mask register 0.

Input Parameters

R4	Byte position from which the byte is read. Allowed input range: 0 – 4.
-----------	--

Output Parameters

ACC	Byte of the box mask register 0.
CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.

Display Register

BOX MASK REGISTER 0

3.9.2 SET_BOXMR_0_BYTE

Name	SET_BOXMR_0_BYTE
Function	Writes one byte into the box mask register 0.

Input Parameters

R4	Byte position to which the byte is written. Allowed input range: 0 – 4.
ACC	New byte contents of the box mask register 0.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

BOX MASK REGISTER 0

3.9.3 GET_BOXMR_0

Name	GET_BOXMR_0
Function	Reads the complete box mask register 0, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the destination address (type: IDATA). The 5 bytes of the box mask register 0 are copied in sequential order (byte position 0 is copied first) to an IDATA-memory block, beginning at the address given by R0. If R0 is set to –1, the destination address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the destination address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the box mask register 0 are copied in sequential order (byte position 0 is copied first) to an XDATA-memory block, beginning at the address given by DPTR.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

BOX MASK REGISTER 0

Display Register Bits

B0B0M – B0B8M
 B0USM
 B0UHM
 B0DHM
 B0DWM
 B0COM
 B0TRBM
 B0TRFM
 B0BXM
 B0BC0M – B0BC4M
 B0FC0M – B0FC4M
 B0F0M – B0F3M
 B0ICM
 B0DD0M – B0DD4M
 B0DM0M – B0DM1M
 B0UCM

3.9.4 SET_BOXMR_0

Name	SET_BOXMR_0
Function	Writes the complete box mask register 0, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the source address (type: IDATA). The 5 bytes of the box mask register 0 are copied in sequential order (byte position 0 is copied first) from an IDATA-memory block, beginning at the address given by R0, to the MEGATEXT box mask register 0. Byte position 0 must be stored at the lowest IDATA address. If R0 is set to –1, the source address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the source address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the box mask register 0 are copied in sequential order (byte position 0 is copied first) from an XDATA-memory block, beginning at the address given by R0, to the MEGATEXT box mask register 0. Byte position 0 must be stored at the lowest XDATA address.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

BOX MASK REGISTER 0

Display Register Bits

B0B0M – B0B8M
 B0USM
 B0UHM
 B0DHM
 B0DWM
 B0COM
 B0TRBM
 B0TRFM
 B0BXM
 B0BC0M – B0BC4M
 B0FC0M – B0FC4M
 B0F0M – B0F3M
 B0ICM

B0DD0M – B0DD4M
 B0DM0M – B0DM1M
 B0UCM

3.9.5 GET_BOXMR_1_BYTE

Name	GET_BOXMR_1_BYTE
Function	Reads one byte of the box mask register 1.

Input Parameters

R4	Byte position from which the byte is read. Allowed input range: 0 – 4.
-----------	--

Output Parameters

ACC	Byte of the box mask register 1.
CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.

Display Register

BOX MASK REGISTER 1

3.9.6 SET_BOXMR_1_BYTE

Name	SET_BOXMR_1_BYTE
Function	Writes one byte into the box mask register 1.

Input Parameters

R4	Byte position to which the byte is written. Allowed input range: 0 – 4.
ACC	New byte contents of the box mask register 1.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

BOX MASK REGISTER 1

3.9.7 GET_BOXMR_1

Name	GET_BOXMR_1
Function	Reads the complete box mask register 1, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the destination address (type: IDATA). The 5 bytes of the box mask register 1 are copied in sequential order (byte position 0 is copied first) to an IDATA-memory block, beginning at the address given by R0. If R0 is set to –1, the destination address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the destination address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the box mask register 1 are copied in sequential order (byte position 0 is copied first) to an XDATA-memory block, beginning at the address given by DPTR.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

BOX MASK REGISTER 1

Display Register Bits

B1B0M – B1B8M
 B1USM
 B1UHM
 B1DHM
 B1DWM
 B1COM
 B1TRBM
 B1TRFM
 B1BXM
 B1BC0M – B1BC4M
 B1FC0M – B1FC4M
 B1F0M – B1F3M
 B1ICM
 B1DD0M – B1DD4M
 B1DM0M – B1DM1M
 B1UCM

3.9.8 SET_BOXMR_1

Name	SET_BOXMR_1
Function	Writes the complete box mask register 1, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the source address (type: IDATA). The 5 bytes of the box mask register 1 are copied in sequential order (byte position 0 is copied first) from an IDATA-memory block, beginning at the address given by R0, to the MEGATEXT box mask register 1. Byte position 0 must be stored at the lowest IDATA address. If R0 is set to –1, the source address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the source address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the box mask register 1 are copied in sequential order (byte position 0 is copied first) from an XDATA-memory block, beginning at the address given by R0, to the MEGATEXT box mask register 1. Byte position 0 must be stored at the lowest XDATA address.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

BOX MASK REGISTER 1

Display Register Bits

B1B0M – B1B8M
 B1USM
 B1UHM
 B1DHM
 B1DWM
 B1COM
 B1TRBM
 B1TRFM
 B1BXM
 B1BC0M – B1BC4M
 B1FC0M – B1FC4M
 B1F0M – B1F3M
 B1ICM

B1DD0M – B1DD4M
B1DM0M – B1DM1M
B1UCM

3.10 Box Display Word

This subchapter describes routines which affect the two box display words of Siemens MEGATEXT.

3.10.1 GET_BOXDW_0_BYTE

Name	GET_BOXDW_0_BYTE
Function	Reads one byte of the box display word 0.

Input Parameters

R4	Byte position from which the byte is read. Allowed input range: 0 – 4.
-----------	--

Output Parameters

ACC	Byte of the box display word 0.
CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.

Display Register

BOX DISPLAY WORD 0

3.10.2 SET_BOXDW_0_BYTE

Name	SET_BOXDW_0_BYTE
Function	Writes one byte into the box display word 0.

Input Parameters

R4	Byte position to which the byte is written. Allowed input range: 0 – 4.
ACC	New byte contents of the box display word 0.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

BOX DISPLAY WORD 0

3.10.3 GET_BOXDW_0

Name	GET_BOXDW_0
Function	Reads the complete box display word 0, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the destination address (type: IDATA). The 5 bytes of the box display word 0 are copied in sequential order (byte position 0 is copied first) to an IDATA-memory block, beginning at the address given by R0. If R0 is set to –1, the destination address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the destination address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the box display word 0 are copied in sequential order (byte position 0 is copied first) to an XDATA-memory block, beginning at the address given by DPTR.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

BOX DISPLAY WORD 0

Display Register Bits

B0B0 – B0B8
 B0US
 B0UH
 B0DH
 B0DW
 B0CO
 B0TRB
 B0TRF
 B0BX
 B0BC0 – B0BC4
 B0FC0 – B0FC4
 B0F0 – B0F3
 B0IC
 B0DD0 – B0DD4
 B0DM0 – B0DM1
 B0UC

3.10.4 SET_BOXDW_0

Name	SET_BOXDW_0
Function	Writes the complete box display word 0, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the source address (type: IDATA). The 5 bytes of the box display word 0 are copied in sequential order (byte position 0 is copied first) from an IDATA-memory block, beginning at the address given by R0, to the MEGATEXT box display word 0. Byte position 0 must be stored at the lowest IDATA address. If R0 is set to –1, the source address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the source address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the box display word 0 are copied in sequential order (byte position 0 is copied first) from an XDATA-memory block, beginning at the address given by R0, to the MEGATEXT box display word 0. Byte position 0 must be stored at the lowest XDATA address.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

BOX DISPLAY WORD 0

Display Register Bits

B0B0 – B0B8
 B0US
 B0UH
 B0DH
 B0DW
 B0CO
 B0TRB
 B0TRF
 B0BX
 B0BC0 – B0BC4
 B0FC0 – B0FC4
 B0F0 – B0F3
 B0IC

B0DD0 – B0DD4
 B0DM0 – B0DM1
 B0UC

3.10.5 GET_BOXDW_1_BYTE

Name	GET_BOXDW_1_BYTE
Function	Reads one byte of the box display word 1.

Input Parameters

R4	Byte position from which the byte is read. Allowed input range: 0 – 4.
-----------	--

Output Parameters

ACC	Byte of the box display word 1.
CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.

Display Register

BOX DISPLAY WORD 1

3.10.6 SET_BOXDW_1_BYTE

Name	SET_BOXDW_1_BYTE
Function	Writes one byte into the box display word 1.

Input Parameters

R4	Byte position to which the byte is written. Allowed input range: 0 – 4.
ACC	New byte contents of the box display word 1.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

BOX DISPLAY WORD 1

3.10.7 GET_BOXDW_1

Name	GET_BOXDW_1
Function	Reads the complete box display word 1, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the destination address (type: IDATA). The 5 bytes of the box display word 1 are copied in sequential order (byte position 0 is copied first) to an IDATA-memory block, beginning at the address given by R0. If R0 is set to –1, the destination address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the destination address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the box display word 1 are copied in sequential order (byte position 0 is copied first) to an XDATA-memory block, beginning at the address given by DPTR.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

BOX DISPLAY WORD 1

Display Register Bits

B1B0 – B1B8
 B1US
 B1UH
 B1DH
 B1DW
 B1CO
 B1TRB
 B1TRF
 B1BX
 B1BC0 – B1BC4
 B1FC0 – B1FC4
 B1F0 – B1F3
 B1IC
 B1DD0 – B1DD4
 B1DM0 – B1DM1
 B1UC

3.10.8 SET_BOXDW_1

Name	SET_BOXDW_1
Function	Writes the complete box display word 1, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the source address (type: IDATA). The 5 bytes of the box display word 1 are copied in sequential order (byte position 0 is copied first) from an IDATA-memory block, beginning at the address given by R0, to the MEGATEXT box display word 1. Byte position 0 must be stored at the lowest IDATA address. If R0 is set to –1, the source address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the source address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the box display word 1 are copied in sequential order (byte position 0 is copied first) from an XDATA-memory block, beginning at the address given by R0, to the MEGATEXT box display word 1. Byte position 0 must be stored at the lowest XDATA address.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

BOX DISPLAY WORD 1

Display Register Bits

B1B0 – B1B8
 B1US
 B1UH
 B1DH
 B1DW
 B1CO
 B1TRB
 B1TRF
 B1BX
 B1BC0 – B1BC4
 B1FC0 – B1FC4
 B1F0 – B1F3
 B1IC

B1DD0 – B1DD4
B1DM0 – B1DM1
B1UC

3.11 Inner Screen Mask Register

This subchapter describes routines which affect the two inner screen mask registers of Siemens MEGATEXT.

3.11.1 GET_ISMR_0_BYTE

Name	GET_ISMR_0_BYTE
Function	Reads one byte of the inner screen mask register 0.

Input Parameters

R4	Byte position from which the byte is read. Allowed input range: 0 – 4.
-----------	--

Output Parameters

ACC	Byte of the inner screen mask register 0.
CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.

Display Register

INNER SCREEN MASK REGISTER 0

3.11.2 SET_ISMR_0_BYTE

Name	SET_ISMR_0_BYTE
Function	Writes one byte into the inner screen mask register 0.

Input Parameters

R4	Byte position to which the byte is written. Allowed input range: 0 – 4.
ACC	New byte contents of the inner screen mask register 0.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

INNER SCREEN MASK REGISTER 0

3.11.3 GET_ISMR_0

Name	GET_ISMR_0
Function	Reads the complete inner screen mask register 0, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the destination address (type: IDATA). The 5 bytes of the inner screen mask register 0 are copied in sequential order (byte position 0 is copied first) to an IDATA-memory block, beginning at the address given by R0. If R0 is set to –1, the destination address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the destination address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the inner screen mask register 0 are copied in sequential order (byte position 0 is copied first) to an XDATA-memory block, beginning at the address given by DPTR.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

INNER SCREEN MASK REGISTER 0

Display Register Bits

IOB0M – IOB8M
 IOUSM
 IOUHM
 IODHM
 IODWM
 IOCOM
 IOTRBM
 IOTRFM
 IOBXM
 IOBC0M – IOBC4M
 IOFC0M – IOFC4M
 IOF0M – IOF3M
 IOICM
 IODD0M – IODD4M
 IODM0M – IODM1M
 IOUCM

3.11.4 SET_ISMR_0

Name	SET_ISMR_0
Function	Writes the complete inner screen mask register 0, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the source address (type: IDATA). The 5 bytes of the inner screen mask register 0 are copied in sequential order (byte position 0 is copied first) from an IDATA-memory block, beginning at the address given by R0, to the MEGATEXT inner screen mask register 0. Byte position 0 must be stored at the lowest IDATA address. If R0 is set to –1, the source address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the source address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the inner screen mask register 0 are copied in sequential order (byte position 0 is copied first) from an XDATA-memory block, beginning at the address given by R0, to the MEGATEXT inner screen mask register 0. Byte position 0 must be stored at the lowest XDATA address.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

INNER SCREEN MASK REGISTER 0

Display Register Bits

IOB0M – IOB8M
 IOUSM
 IOUHM
 IODHM
 IODWM
 IOCOM
 IOTRBM
 IOTRFM
 IOBXM
 IOBC0M – IOBC4M
 IOFC0M – IOFC4M
 IOF0M – IOF3M

I0ICM
I0DD0M – I0DD4M
I0DM0M – I0DM1M
I0UCM

3.11.5 GET_ISMR_1_BYTE

Name	GET_ISMR_1_BYTE
Function	Reads one byte of the inner screen mask register 1.

Input Parameters

R4	Byte position from which the byte is read. Allowed input range: 0 – 4.
-----------	--

Output Parameters

ACC	Byte of the inner screen mask register 1.
CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.

Display Register

INNER SCREEN MASK REGISTER 1

3.11.6 SET_ISMR_1_BYTE

Name	SET_ISMR_1_BYTE
Function	Writes one byte into the inner screen mask register 1.

Input Parameters

R4	Byte position to which the byte is written. Allowed input range: 0 – 4.
ACC	New byte contents of the inner screen mask register 1.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

INNER SCREEN MASK REGISTER 1

3.11.7 GET_ISMR_1

Name	GET_ISMR_1
Function	Reads the complete inner screen mask register 1, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the destination address (type: IDATA). The 5 bytes of the inner screen mask register 1 are copied in sequential order (byte position 0 is copied first) to an IDATA-memory block, beginning at the address given by R0. If R0 is set to –1, the destination address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the destination address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the inner screen mask register 1 are copied in sequential order (byte position 0 is copied first) to an XDATA-memory block, beginning at the address given by DPTR.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

INNER SCREEN MASK REGISTER 1

Display Register Bits

I1B0M – I1B8M
 I1USM
 I1UHM
 I1DHM
 I1DWM
 I1COM
 I1TRBM
 I1TRFM
 I1BXM
 I1BC0M – I1BC2M
 I1FC0M – I1FC2M
 I1F0M – I1F3M
 I1ICM
 I1DD0M – I1DD4M
 I1DM0M – I1DM1M
 I1UCM

3.11.8 SET_ISMR_1

Name	SET_ISMR_1
Function	Writes the complete inner screen mask register 1, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the source address (type: IDATA). The 5 bytes of the inner screen mask register 1 are copied in sequential order (byte position 0 is copied first) from an IDATA-memory block, beginning at the address given by R0, to the MEGATEXT inner screen mask register 1. Byte position 0 must be stored at the lowest IDATA address. If R0 is set to –1, the source address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the source address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the inner screen mask register 1 are copied in sequential order (byte position 0 is copied first) from an XDATA-memory block, beginning at the address given by R0, to the MEGATEXT inner screen mask register 1. Byte position 0 must be stored at the lowest XDATA address.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

INNER SCREEN MASK REGISTER 1

Display Register Bits

I1B0M – I1B8M
 I1USM
 I1UHM
 I1DHM
 I1DWM
 I1COM
 I1TRBM
 I1TRFM
 I1BXM
 I1BC0M – I1BC2M
 I1FC0M – I1FC2M
 I1F0M – I1F3M

I1ICM
I1DD0M – I1DD4M
I1DM0M – I1DM1M
I1UCM

3.12 Inner Screen Display Word

This subchapter describes routines which affect the two inner screen display words of Siemens MEGATEXT.

3.12.1 GET_ISDW_0_BYTE

Name	GET_ISDW_0_BYTE
Function	Reads one byte of the inner screen display word 0.

Input Parameters

R4	Byte position from which the byte is read. Allowed input range: 0 – 4.
-----------	--

Output Parameters

ACC	Byte of the inner screen display word 0.
CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.

Display Register

INNER SCREEN DISPLAY WORD 0

3.12.2 SET_ISDW_0_BYTE

Name	SET_ISDW_0_BYTE
Function	Writes one byte into the inner screen display word 0.

Input Parameters

R4	Byte position to which the byte is written. Allowed input range: 0 – 4.
ACC	New byte contents of the inner screen display word 0.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

INNER SCREEN DISPLAY WORD 0

3.12.3 GET_ISDW_0

Name	GET_ISDW_0
Function	Reads the complete inner screen display word 0, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the destination address (type: IDATA). The 5 bytes of the inner screen display word 0 are copied in sequential order (byte position 0 is copied first) to an IDATA-memory block, beginning at the address given by R0. If R0 is set to –1, the destination address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the destination address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the inner screen display word 0 are copied in sequential order (byte position 0 is copied first) to an XDATA-memory block, beginning at the address given by DPTR.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

INNER SCREEN DISPLAY WORD 0

Display Register Bits

IOB0 – IOB8
 IOUS
 IOUH
 IODH
 IODW
 IOCO
 IOTRB
 IOTRF
 IOBX
 IOBC0 – IOBC4
 IOFC0 – IOFC4
 IOF0 – IOF3
 IOIC
 IODD0 – IODD4
 IODM0 – IODM1
 IOUC

3.12.4 SET_ISDW_0

Name	SET_ISDW_0
Function	Writes the complete inner screen display word 0, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the source address (type: IDATA). The 5 bytes of the inner screen display word 0 are copied in sequential order (byte position 0 is copied first) from an IDATA-memory block, beginning at the address given by R0, to the MEGATEXT inner screen display word 0. Byte position 0 must be stored at the lowest IDATA address. If R0 is set to –1, the source address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the source address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the inner screen display word 0 are copied in sequential order (byte position 0 is copied first) from an XDATA-memory block, beginning at the address given by R0, to the MEGATEXT inner screen display word 0. Byte position 0 must be stored at the lowest XDATA address.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

INNER SCREEN DISPLAY WORD 0

Display Register Bits

IOB0 – IOB8
 IOUS
 IOUH
 IODH
 IODW
 IOCO
 IOTRB
 IOTRF
 IOBX
 IOBC0 – IOBC4
 IOFC0 – IOFC4
 IOF0 – IOF3

I0IC
I0DD0 – I0DD4
I0DM0 – I0DM1
I0UC

3.12.5 GET_ISDW_1_BYTE

Name	GET_ISDW_1_BYTE
Function	Reads one byte of the inner screen display word 1.

Input Parameters

R4	Byte position from which the byte is read. Allowed input range: 0 – 4.
-----------	--

Output Parameters

ACC	Byte of the inner screen display word 1.
CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.

Display Register

INNER SCREEN DISPLAY WORD 1

3.12.6 SET_ISDW_1_BYTE

Name	SET_ISDW_1_BYTE
Function	Writes one byte into the inner screen display word 1.

Input Parameters

R4	Byte position to which the byte is written. Allowed input range: 0 – 4.
ACC	New byte contents of the inner screen display word 1.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

INNER SCREEN DISPLAY WORD 1

3.12.7 GET_ISDW_1

Name	GET_ISDW_1
Function	Reads the complete inner screen display word 1, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the destination address (type: IDATA). The 5 bytes of the inner screen display word 1 are copied in sequential order (byte position 0 is copied first) to an IDATA-memory block, beginning at the address given by R0. If R0 is set to –1, the destination address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the destination address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the inner screen display word 1 are copied in sequential order (byte position 0 is copied first) to an XDATA-memory block, beginning at the address given by DPTR.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

INNER SCREEN DISPLAY WORD 1

Display Register Bits

I1B0 – I1B8
 I1US
 I1UH
 I1DH
 I1DW
 I1CO
 I1TRB
 I1TRF
 I1BX
 I1BC0 – I1BC4
 I1FC0 – I1FC4
 I1F0 – I1F3
 I1IC
 I1DD0 – I1DD4
 I1DM0 – I1DM1
 I1UC

3.12.8 SET_ISDW_1

Name	SET_ISDW_1
Function	Writes the complete inner screen display word 1, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the source address (type: IDATA). The 5 bytes of the inner screen display word 1 are copied in sequential order (byte position 0 is copied first) from an IDATA-memory block, beginning at the address given by R0, to the MEGATEXT inner screen display word 1. Byte position 0 must be stored at the lowest IDATA address. If R0 is set to –1, the source address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the source address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the inner screen display word 1 are copied in sequential order (byte position 0 is copied first) from an XDATA-memory block, beginning at the address given by R0, to the MEGATEXT inner screen display word 1. Byte position 0 must be stored at the lowest XDATA address.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

INNER SCREEN DISPLAY WORD 1

Display Register Bits

I1B0 – I1B8
 I1US
 I1UH
 I1DH
 I1DW
 I1CO
 I1TRB
 I1TRF
 I1BX
 I1BC0 – I1BC4
 I1FC0 – I1FC4
 I1F0 – I1F3

I1IC
I1DD0 – I1DD4
I1DM0 – I1DM1
I1UC

3.13 Outer Screen Mask Register

This subchapter describes routines which affect the outer screen mask register of Siemens MEGATEXT.

3.13.1 GET_OSMR_BYTE

Name	GET_OSMR_BYTE
Function	Reads one byte of the outer screen mask register.

Input Parameters

R4	Byte position from which the byte is read. Allowed input range: 0 – 4.
-----------	--

Output Parameters

ACC	Byte of the outer screen mask register.
CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.

Display Register

OUTER SCREEN MASK REGISTER

3.13.2 SET_OSMR_BYTE

Name	SET_OSMR_BYTE
Function	Writes one byte into the outer screen mask register.

Input Parameters

R4	Byte position to which the byte is written. Allowed input range: 0 – 4.
ACC	New byte contents of the outer screen mask register.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

OUTER SCREEN MASK REGISTER

3.13.3 GET_OSMR

Name	GET_OSMR
Function	Reads the complete outer screen mask register, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the destination address (type: IDATA). The 5 bytes of the outer screen mask register are copied in sequential order (byte position 0 is copied first) to an IDATA-memory block, beginning at the address given by R0. If R0 is set to –1, the destination address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the destination address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the outer screen mask register are copied in sequential order (byte position 0 is copied first) to an XDATA-memory block, beginning at the address given by DPTR.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

OUTER SCREEN MASK REGISTER

Display Register Bits

OB0M – OB8M
 OUSM
 OUHM
 ODHM
 ODWM
 OCOM
 OTRBM
 OTRFM
 OBXM
 OBC0M – OBC4M
 OFC0M – OFC4M
 OF0M – OF3M
 OICM
 ODD0M – ODD4M
 ODM0M – ODM1M
 OUCM

3.13.4 SET_OSMR

Name	SET_OSMR
Function	Writes the complete outer screen mask register, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the source address (type: IDATA). The 5 bytes of the outer screen mask register are copied in sequential order (byte position 0 is copied first) from an IDATA-memory block, beginning at the address given by R0, to the MEGATEXT outer screen mask register. Byte position 0 must be stored at the lowest IDATA address. If R0 is set to –1, the source address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the source address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the outer screen mask register are copied in sequential order (byte position 0 is copied first) from an XDATA-memory block, beginning at the address given by R0, to the MEGATEXT outer screen mask register. Byte position 0 must be stored at the lowest XDATA address.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

OUTER SCREEN MASK REGISTER

Display Register Bits

OB0M – OB8M
 OUSM
 OUHM
 ODHM
 ODWM
 OCOM
 OTRBM
 OTRFM
 OBXM
 OBC0M – OBC4M
 OFC0M – OFC4M
 OF0M – OF3M

OICM
 ODD0M – ODD4M
 ODM0M – ODM1M
 OUCM

3.14 Outer Screen Display Word

This subchapter describes routines which affect the outer screen display word of Siemens MEGATEXT.

3.14.1 GET_OSDW_BYTE

Name	GET_OSDW_BYTE
Function	Reads one byte of the outer screen display word.

Input Parameters

R4	Byte position from which the byte is read. Allowed input range: 0 – 4.
-----------	--

Output Parameters

ACC	Byte of the outer screen display word.
CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.

Display Register

OUTER SCREEN DISPLAY WORD

3.14.2 SET_OSDW_BYTE

Name	SET_OSDW_BYTE
Function	Writes one byte into the outer screen display word.

Input Parameters

R4	Byte position to which the byte is written. Allowed input range: 0 – 4.
ACC	New byte contents of the outer screen display word.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

OUTER SCREEN DISPLAY WORD

3.14.3 GET_OSDW

Name	GET_OSDW
Function	Reads the complete outer screen display word, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the destination address (type: IDATA). The 5 bytes of the outer screen display word are copied in sequential order (byte position 0 is copied first) to an IDATA-memory block, beginning at the address given by R0. If R0 is set to –1, the destination address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the destination address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the outer screen display word are copied in sequential order (byte position 0 is copied first) to an XDATA-memory block, beginning at the address given by DPTR.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

OUTER SCREEN DISPLAY WORD

Display Register Bits

OB0 – OB8
 OUS
 OUH
 ODH
 ODW
 OCO
 OTRB
 OTRF
 OBX
 OBC0 – OBC4
 OFC0 – OFC4
 OF0 – OF3
 OIC
 ODD0 – ODD4
 ODM0 – ODM1
 OUC

3.14.4 SET_OSDW

Name	SET_OSDW
Function	Writes the complete outer screen display word, consisting of 5 bytes (byte positions 0 – 4).

Input Parameters

R0	Pointer to first byte of the source address (type: IDATA). The 5 bytes of the outer screen display word are copied in sequential order (byte position 0 is copied first) from an IDATA-memory block, beginning at the address given by R0, to the MEGATEXT outer screen display word. Byte position 0 must be stored at the lowest IDATA address. If R0 is set to –1, the source address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the source address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 5 bytes of the outer screen display word are copied in sequential order (byte position 0 is copied first) from an XDATA-memory block, beginning at the address given by R0, to the MEGATEXT outer screen display word. Byte position 0 must be stored at the lowest XDATA address.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

OUTER SCREEN DISPLAY WORD

Display Register Bits

OB0 – OB8
 OUS
 OUH
 ODH
 ODW
 OCO
 OTRB
 OTRF
 OBX
 OBC0 – OBC4
 OFC0 – OFC4
 OF0 – OF3

OIC
 ODD0 – ODD4
 ODM0 – ODM1
 OUC

3.15 Color Lookup Tables

This subchapter describes routines which control the color lookup tables (CLUTs) in Siemens MEGATEXT.

3.15.1 SET_CLUT_COLOR

Name	SET_CLUT_COLOR
Function	Writes a new color to a CLUT.

Input Parameters

ACC	CLUT number. Allowed input range: 2 – 7. CLUTs 0 and 1 are hardwired and cannot be redefined by user software. CLUTs 0 to 3 are standard CLUTs, CLUTs 4 to 7 are user CLUTs.
R4	Color vector number. Allowed input range: 0 – 7. Each CLUT consists of 8 colors, numbered from 0 to 7.
R5	Red level (0 – 15).
R6	Green level (0 – 15).
R7	Blue level (0 – 15).

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

CLUT

3.16 Row Attribute Register

This subchapter describes routines which affect the row attribute register of Siemens MEGATEXT. The row attribute register is divided into the row format register (bits 0 – 7), the row data register (bits 8 – 23), the row mask register (bits 24 – 39) and the bits for screen background color (bits 40 – 44) and the cursor color (bits 45 – 47).

3.16.1 GET_RATT_BYTE

Name	GET_RATT_BYTE
Function	Reads one byte of the row attribute register.

Input Parameters

R4	Byte position from which the byte is read. Allowed input range: 0 – 4.
R7	Row number. Allowed input range: 0 – 25 (for ISDA), 31 (for OSDA and held rows).

Output Parameters

ACC	Byte of the row attribute register.
CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.

Display Register

ROW ATTRIBUTE REGISTER

3.16.2 SET_RATT_BYTE

Name	SET_RATT_BYTE
Function	Writes one byte into the row attribute register.

Input Parameters

R4	Byte position to which the byte is written. Allowed input range: 0 – 4.
R7	Row number. Allowed input range: 0 – 25 (for ISDA), 31 (for OSDA and held rows).
ACC	New byte contents of the row attribute register.

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

ROW ATTRIBUTE REGISTER

3.16.3 GET_RATT

Name	GET_RATT
Function	Reads the complete row attribute register, consisting of 6 bytes (byte positions 0 – 5).

Input Parameters

R0	Pointer to first byte of the destination address (type: IDATA). The 6 bytes of the row attribute register are copied in sequential order (byte position 0 is copied first) to an IDATA-memory block, beginning at the address given by R0. If R0 is set to –1, the destination address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.
DPTR	Pointer to first byte of the destination address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 6 bytes of the addressed row attribute register are copied in sequential order (byte position 0 is copied first) to an XDATA-memory block, beginning at the address given by DPTR.
R7	Row number. Allowed input range: 0 – 25 (for ISDA), 31 (for OSDA and held rows).

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

ROW ATTRIBUTE REGISTER

Display Register Bits

RLSC0 – RLSC1
 RLCC0 – RLCC1
 RCHC0 – RCHC1
 USF
 RUS
 RCO
 RTRB
 RTRF
 RBX
 RIC
 RFL0 – RFL3
 RBC0 – RBC4
 RCOR

RCHM
 RUSM
 RUHM
 RDHM
 RDWM
 RCOM
 RTRBM
 RTRFM
 RBXM
 RICM
 RFLM
 RBCM
 RBCCM
 RFCM
 RFCCM
 RPMM
 SBC0 – SBC4
 CC0 – CC2

3.16.4 SET_RATT

Name	SET_RATT
Function	Writes the complete row attribute register, consisting of 6 bytes (byte positions 0 – 5).

Input Parameters

R0	<p>Pointer to first byte of the source address (type: IDATA). The 6 bytes of the row attribute register are copied in sequential order (byte position 0 is copied first) from an IDATA-memory block, beginning at the address given by R0, to the MEGATEXT row attribute register. Byte position 0 must be stored at the lowest IDATA address.</p> <p>If R0 is set to –1, the source address is assumed to be in the XDATA memory. In this case, the DPTR instead of R0 points to the first byte of the source address.</p>
DPTR	<p>Pointer to first byte of the source address (type: XDATA). This input parameter is only valid if R0 is set to –1, otherwise it is ignored. The 6 bytes of the row attribute register are copied in sequential order (byte position 0 is copied first) from an XDATA-memory block, beginning at the address given by R0, to the MEGATEXT row attribute register. Byte position 0 must be stored at the lowest XDATA address.</p>
R7	<p>Row number. Allowed input range: 0 – 25 (for ISDA), 31 (for OSDA and held rows).</p>

Output Parameters

CY	Error flag. Is set to '1' if an error occurred during transmission on the serial bus.
-----------	---

Display Register

ROW ATTRIBUTE REGISTER

Display Register Bits

RLSC0 – RLSC1
 RLCC0 – RLCC1
 RCHC0 – RCHC1
 USF
 RUS
 RCO
 RTRB
 RTRF
 RBX
 RIC
 RFL0 – RFL3
 RBC0 – RBC4
 RCOR
 RCHM
 RUSM
 RUHM
 RDHM
 RDWM
 RCOM
 RTRBM
 RTRFM
 RBXM
 RICM
 RFLM
 RBCM
 RBCCM
 RFCM
 RFCCM
 RPMM
 SBC0 – SBC4
 CC0 – CC2

4 Subroutines Overview

The following table gives an overview of all available subroutines of the MTXD module in alphabetic order.

No.	Name of Subroutine	Page
1	GET_BOXDW_0	50
2	GET_BOXDW_0_BYTE	49
3	GET_BOXDW_1	53
4	GET_BOXDW_1_BYTE	52
5	GET_BOXMR_0	44
6	GET_BOXMR_0_BYTE	43
7	GET_BOXMR_1	47
8	GET_BOXMR_1_BYTE	46
9	GET_DCPW	32
10	GET_DCPW_BYTE	31
11	GET_DISPLAY_CURSOR_POSITION	34
12	GET_DISPLAY_WORD	11
13	GET_DPW	18
14	GET_DPW_BYTE	17
15	GET_GPW	27
16	GET_GPW_BYTE	26
17	GET_GRAPHIC_POSITION	29
18	GET_ISDA_POSITION	20
19	GET_ISDW_0	62
20	GET_ISDW_0_BYTE	61
21	GET_ISDW_1	65
22	GET_ISDW_1_BYTE	64
23	GET_ISMR_0	56
24	GET_ISMR_0_BYTE	55
25	GET_ISMR_1	59
26	GET_ISMR_1_BYTE	58
27	GET OSDW	71
28	GET OSDW_BYTE	70
29	GET OSMR	68
30	GET OSMR_BYTE	67
31	GET_PAGE_CURSOR_POSITION	13

No.	Name of Subroutine	Page
32	GET_PPW	23
33	GET_PPW_BYTE	22
34	GET_RATT	75
35	GET_RATT_BYTE	74
36	GET_SDW	15
37	GET_SDW_BYTE	14
38	GET_TDW	41
39	GET_TDW_BYTE	40
40	SET_BOXDW_0	51
41	SET_BOXDW_0_BYTE	49
42	SET_BOXDW_1	54
43	SET_BOXDW_1_BYTE	52
44	SET_BOXMR_0	45
45	SET_BOXMR_0_BYTE	43
46	SET_BOXMR_1	48
47	SET_BOXMR_1_BYTE	46
48	SET_CLUT_COLOR	73
49	SET_CURSOR_BLOCK	36
50	SET_CURSOR_FLASH	37
51	SET_CURSOR_MODE	35
52	SET_CURSOR_STEADY	37
53	SET_CURSOR_UNDERLINE	36
54	SET_DCPW	33
55	SET_DCPW_BYTE	31
56	SET_DISPLAY_CURSOR_OFF	39
57	SET_DISPLAY_CURSOR_ON	38
58	SET_DISPLAY_CURSOR_POSITION	35
59	SET_DISPLAY_WORD	12
60	SET_DPW	19
61	SET_DPW_BYTE	17
62	SET_GPW	28
63	SET_GPW_BYTE	26
64	SET_GRAPHIC_POSITION	29
65	SET_GRAPHIC_ZOOM_HORIZONTAL	30

No.	Name of Subroutine	Page
66	SET_GRAPHIC_ZOOM_VERTICAL	30
67	SET_ISDA_BLOCK_2	25
68	SET_ISDA_BLOCK_3	25
69	SET_ISDA_POSITION	20
70	SET_ISDW_0	63
71	SET_ISDW_0_BYTE	61
72	SET_ISDW_1	66
73	SET_ISDW_1_BYTE	64
74	SET_ISMR_0	57
75	SET_ISMR_0_BYTE	55
76	SET_ISMR_1	60
77	SET_ISMR_1_BYTE	58
78	SET OSDW	72
79	SET OSDW_BYTE	70
80	SET_OSMR	69
81	SET_OSMR_BYTE	67
82	SET_PAGE_CURSOR_OFF	38
83	SET_PAGE_CURSOR_ON	37
84	SET_PAGE_CURSOR_POSITION	14
85	SET_PIXEL_CURSOR_FORMAT	39
86	SET_PPW	24
87	SET_PPW_BYTE	22
88	SET_RATT	76
89	SET_RATT_BYTE	74
90	SET_SCREEN_ATTR_0	21
91	SET_SCREEN_ATTR_1	21
92	SET_SDW	16
93	SET_SDW_BYTE	15
94	SET_TDW	42
95	SET_TDW_BYTE	40

5 Abbreviations

The following table gives an overview of all abbreviations used.

A/D	Analog-to-digital
ACC	Accumulator (8051)
addr	Address
BOXDW	Box display word
BOXMR	Box mask register
CDW	Character display word
CRC	Cyclic redundancy check
CVBS	Color video blanking sync
CY	Carry (8051)
D/A	Digital-to-analog
DC	Direct current
DCPW	Display cursor position word
DPTR	Data pointer (8051)
DPW	Display position word
ext	External
GPW	Graphic position word
HSYNC	Horizontal sync
int	Internal
ISDW	Inner screen display word
ISMR	Inner screen mask register
LSB	Least significant bit
MSB	Most significant bit
MTX	MEGATEXT
NPRD	Non-page-related data
OSDW	Outer screen display word
OSMR	Outer screen mask register
PCPW	Page cursor position word
PDC	Program delivery control
PLL	Phase-locked loop
PPW	Page position word
PRQ	Page request
PSW	Program status word (8051)
PU	Processing unit
RATT	Row attribute register
RGB	Red green blue
RIT	Request information table
S/P-C	Serial/parallel conversion
SDW	Sync delay word
seg	Segment
TCS	Text composite sync
TDW	Termination display word
TTX	Teletext
TV	Television

V-Delay	Vertical delay
VPS	Video programming system
VSNC	Vertical sync

6 Literature

The following list gives an overview of literature available on Siemens MEGATEXT and on teletext.

- [1] Höck, G.
SDA 5273 M3L-Bus Registers Programmer's Reference
Siemens AG, HL UE PD 23
1992
- [2] Höck, G.
SDA 5273 MCI Description
Siemens AG, HL UE PD 23
Munich 1992
- [3] Englert, U.
SDA 5273 ACQ Reference Manual
Siemens AG, HL UE PE 11
1992
- [4] Roessler, W.
MEGATEXT Display Functions
Siemens AG, HL UE AT 23
1992
- [5] Mirthes, R.
MEGATEXT Display Register Overview
Siemens AG, HL UE PD 23
1991
- [6] Mirthes, R.
SIESTA MEGATEXT
MTXBASIC
M3L-Register Control Routines
Siemens AG, HL UE AT 23
1992
- [7] Mirthes, R.
SIESTA MEGATEXT
MEGATEXT Command Interface Control Routines
Siemens AG, HL UE AT 23
1992
(in preparation)
- [8] N. N.
World System Teletext and Data
Broadcasting System
Technical Specification
Department of Trade and Industry
London, 1988

7 Index

A

Accumulator 80
 accumulator 6, 10
 address formats 7
 AEDIT 6
 ASM51 6, 9
 assembler 6, 9

B

B register 10
 B0B0 – B0B8 49–50
 B0B0M – B0B8M 43–44
 B0BC0 – B0BC4 49–50
 B0BC0M – B0BC4M 43–44
 B0BX 49–50
 B0BXM 43–44
 B0CO 49–50
 B0COM 43–44
 B0DD0 – B0DD4 49, 51
 B0DD0M – B0DD4M 43, 45
 B0DH 49–50
 B0DHM 43–44
 B0DM0 49
 B0DM0 – B0DM1 49, 51
 B0DM0M – B0DM1M 43, 45
 B0DW 49–50
 B0DWM 43–44
 B0F0 – B0F3 49–50
 B0F0M – B0F3M 43–44
 B0FC0 – B0FC4 49–50
 B0FC0M – B0FC4M 43–44
 B0IC 49–50
 B0ICM 43–44
 B0TRB 49–50
 B0TRBM 43–44
 B0TRF 49–50
 B0TRFM 43–44
 B0UC 49, 51
 B0UCM 43, 45
 B0UH 49–50
 B0UHM 43–44
 B0US 49–50
 B0USM 43–44
 B1B0 – B1B8 52–53
 B1B0M – B1B8M 46–47
 B1BC0 – B1BC4 52–53

B1BC0M – B1BC4M 46–47

B1BX 52–53
 B1BXM 46–47
 B1CO 52–53
 B1COM 46–47
 B1DD0 – B1DD4 52, 54
 B1DD0M – B1DD4M 46
 B1DH 52–53
 B1DHM 46–47
 B1DM0 – B1DM1 52, 54
 B1DM0M – B1DM1M 46, 48
 B1DW 52–53
 B1DWM 46–47
 B1F0 – B1F3 52–53
 B1F0M – B1F3M 46–47
 B1FC0 – B1FC4 52–53
 B1FC0M – B1FC4M 46–47
 B1IC 52–53
 B1ICM 46–47
 B1TRB 52–53
 B1TRBM 46–47
 B1TRF 52–53
 B1TRFM 46–47
 B1UC 52, 54
 B1UCM 46, 48
 B1UH 52–53
 B1UHM 46–47
 B1US 52–53
 B1USM 46–47
 basic display area 11–12
 BES 22–24
 Binary numbers 6
 binary numbers 6
 BLOCK 35, 78
 Block number 7–8
 block number 10–11
 BOX DISPLAY WORD 48–53
 Box Display Word 48
 Box display word 80
 box display word 48–53
 BOX MASK REGISTER 42–47
 Box Mask Register 42
 Box mask register 80
 box mask register 42–47
 Byte position 7–8, 11, 13–16, 18, 21, 23, 25,
 27, 30–32, 39, 41–42, 44–45, 47–48,
 50–51, 53–54, 56–57, 59–60, 62–63,

65–66, 68–69, 71, 73, 75
 byte position 7, 10–11, 14–15, 17–18, 22–23,
 26–27, 31–32, 40–41, 43–44, 46–47,
 49–50, 52–53, 55–56, 58–59, 61–62,
 64–65, 67–68, 70–71, 74–75

C

CC0 – CC2 75–76
 CF0 – CF1 32–33, 35
 Chapter number 8–9
 Character Display Word 10
 Character display word 80
 character display word 10–12
 CLUT 72
 CM0 – CM1 32–33, 35
 Color 72, 80
 color 72–73
 Color Lookup Tables 72
 color lookup tables 72
 Column number 7–9, 12–13
 column number 10–11
 command number 9
 CS 32–33, 36
 cursor format 38

D

Data pointer 80
 data pointer 10
 DCON 32–33, 37–38
 DCPWC 32–34
 DCPWL 32–34
 DCPWP 32–34
 DCPWR 32–34
 Decimal numbers 6
 decimal numbers 6
 development environment 6
 DHD 17–18
 DHP 22–23
 display cursor 33, 37–38
 display cursor mode 34
 display cursor position 34
 DISPLAY CURSOR POSITION WORD 30–38
 Display Cursor Position Word 30
 Display cursor position word 80
 display cursor position word 30–34
 DISPLAY POSITION WORD 16–20, 36
 Display Position Word 16
 Display position word 80

display position word 16–19
 DPTR 10–11, 14–15, 17–18, 22–23, 26–27,
 31–32, 40–41, 43–44, 46–47, 49–50,
 52–53, 55–56, 58–59, 61–62, 64–65,
 67–68, 70–71, 74–75, 80

DPWC 17–20

DPWL 17–20

DPWR 17–20

DSC 17–18

DWD 17–18

DWP 22, 24

E

External Calls 10
 external symbols 9–10

F

FLASH 36, 78
 flash 36
 FLC 15
 functions 6, 9

G

GPWC 26–29
 GPWL 26–29
 GPWR 26–29
 graphic position 28
 GRAPHIC POSITION WORD 25–30
 graphic position word 25–28
 GRM0 – GRM1 26–27
 GRSP 26–27
 GRSX0 – GRSX1 26–27
 GRSY0 – GRSY2 26–27
 GRSZ0 – GRSZ1 26–27
 GRZF0 – GRZF1 29
 GRZF0 – GRZF3 26–27
 GRZF2 – GRZF3 30

H

Hardware 6
 hardware 9
 Hexadecimal numbers 6
 hexadecimal numbers 6
 horizontal 29
 HR0 22–23
 HR1 22–23
 HR23 22–23
 HR24 22–23

-
- I**
- I0B0 – I0B8 61–62
 - I0B0M – I0B8M 55–56
 - I0BC0 – I0BC4 61–62
 - I0BC0M – I0BC4M 55–56
 - I0BX 61–62
 - I0BXM 55–56
 - I0CO 61–62
 - I0COM 55–56
 - I0DD0 – I0DD4 61, 63
 - I0DD0M – I0DD4M 55, 57
 - I0DH 61–62
 - I0DHM 55–56
 - I0DM0 – I0DM1 61, 63
 - I0DM0M – I0DM1M 55, 57
 - I0DW 61–62
 - I0DWM 55–56
 - I0F0 – I0F3 61–62
 - I0F0M – I0F3M 55–56
 - I0FC0 – I0FC4 61–62
 - I0FC0M – I0FC4M 55–56
 - I0IC 61, 63
 - I0ICM 55, 57
 - I0TRB 61–62
 - I0TRBM 55–56
 - I0TRF 61–62
 - I0TRFM 55–56
 - I0UC 61, 63
 - I0UCM 55, 57
 - I0UH 61–62
 - I0UHM 55–56
 - I0US 61–62
 - I0USM 55–56
 - I1B0 – I1B8 64–65
 - I1B0M – I1B8M 58–59
 - I1BC0 – I1BC 64–65
 - I1BC0M – I1BC2M 58–59
 - I1BX 64–65
 - I1BXM 58–59
 - I1CO 64–65
 - I1COM 58–59
 - I1DD0 – I1DD4 64, 66
 - I1DD0M – I1DD4M 58, 60
 - I1DH 64–65
 - I1DHM 58–59
 - I1DM0 – I1DM1 64, 66
 - I1DM0M – I1DM1M 58, 60
 - I1DW 64–65
 - I1DWM 58–59
 - I1F0 – I1F3 64–65
 - I1F0M – I1F3M 58–59
 - I1FC0 – I1FC4 64–65
 - I1FC0M – I1FC2M 58–59
 - I1IC 64, 66
 - I1ICM 58, 60
 - I1TRB 64–65
 - I1TRBM 58–59
 - I1TRF 64–65
 - I1TRFM 58–59
 - I1UC 64, 66
 - I1UCM 58, 60
 - I1UH 64–65
 - I1UHM 58–59
 - I1US 64–65
 - I1USM 58–59
 - in-circuit emulator 6
 - Include Files 9
 - include files 9
 - Inner Screen Display Word 60
 - Inner screen display word 80
 - inner screen display word 60
 - INNER SCREEN DISPLAY WORD 0 60–62
 - INNER SCREEN DISPLAY WORD 1 63–65
 - Inner screen mask register 80
 - inner screen mask register 54
 - INNER SCREEN MASK REGISTER 0 54–56
 - INNER SCREEN MASK REGISTER 1 57–59
 - Introduction 6
 - ISDA 12–13, 24, 73–75
- L**
- linker 6, 10
 - LLC 15
 - LNCL 17–18
 - LNSA 17–18
- M**
- M3L-Bus 9
 - M3LHBASE.A51 9
 - MEGATEXT 7
 - MEGATEXT address format 8–9
 - MEGATEXT memory 11, 24
 - MEGATEXT.INC 9
 - memory 6–7
 - Module 9

module 6–7, 9

Module Links 9

MTXBASIC.A51 9

MTXD 6–7, 9–10, 77

MTXDISPL.A51 6, 9–10

MTXDISPL.INC 10

O

OB0 – OB8 70–71

OB0M – OB8M 67–68

OBC0 – OBC4 70–71

OBC0M – OBC4M 67–68

OBX 70–71

OBXM 67–68

OCO 70–71

OCOM 67–68

ODD0 – ODD4 70, 72

ODD0M – ODD4M 67, 69

ODH 70–71

ODHM 67–68

ODM0 – ODM1 70, 72

ODM0M – ODM1M 67, 69

ODW 70–71

ODWM 67–68

OF0 – OF3 70–71

OF0M – OF3M 67–68

OFC0 – OFC4 70–71

OFC0M – OFC4M 67–68

OIC 70, 72

OICM 67, 69

OTRB 70–71

OTRBM 67–68

OTRF 70–71

OTRFM 67–68

OUC 70, 72

OUCM 67, 69

OUH 70–71

OUHM 67–68

OUS 70–71

OUSM 67–68

OUTER SCREEN DISPLAY WORD 69–71

Outer Screen Display Word 69

Outer screen display word 80

outer screen display word 69–71

OUTER SCREEN MASK REGISTER 66–68

Outer Screen Mask Register 66

Outer screen mask register 80

outer screen mask register 66–68

P

page cursor 12–13, 36–37

PAGE CURSOR POSITION WORD 12–13

Page Cursor Position Word 12

Page cursor position word 80

page cursor position word 12

PAGE POSITION WORD 21–24

Page Position Word 21

Page position word 80

page position word 21–23

PCF0 – PCF3 32–33, 38

PCHC0 – PCHC1 22, 24

PCON 32–33, 37

PCPWC 12–13

PCPWR 12–13

pixel cursor 38

PLCC0 – PLCC1 22–23

PLSC0 – PLSC1 22, 24

position 19

PPWC 22–23

PPWL 22–23

PPWR 22–23

procedures 9

Program status word 80

program status word 10

PSW 10, 80

R

RBC0 – RBC4 74, 76

RBCCM 75–76

RBCM 75–76

RBX 74, 76

RBXM 75–76

RCHC0 – RCHC1 74, 76

RCHM 75–76

RCO 74, 76

RCOM 75–76

RCOR 74, 76

RDHM 75–76

RDWM 75–76

register address 9

register control routines 9

REGISTER.INC 9

registers R0 – R7 6

RFCCM 75–76

RFCM 75–76

RFL0 – RFL3 74, 76

RFLM 75–76

RIC 74, 76
 RICH 75–76
 RL51 6
 RLCC0 – RLCC1 74, 76
 RLSC0 – RLSC1 74, 76
 ROW ATTRIBUTE REGISTER 73–74, 76
 Row Attribute Register 73
 Row attribute register 80
 row attribute register 73–75
 row data register 73
 row format register 73
 row mask register 73
 Row number 7–9, 12–13, 73–75
 row number 10–11, 13
 RPMM 75–76
 RTRB 74, 76
 RTRBM 75–76
 RTRF 74, 76
 RTRFM 75–76
 RUHM 75–76
 RUS 74, 76
 RUSM 75–76

S

SAS 17–18, 20
 SBC0 – SBC4 75–76
 screen attributes 20
 screen background color 73
 SDWC 15
 SDWL 15
 SDWR 15
 Software 6, 9
 software 6, 9–10, 72
 SOH 22–23
 SOV 22–23
 special-function registers 9
 SRM0 – SRM1 22–23
 STEADY 36, 78
 steady 36
 Subroutines 77
 subroutines 6, 9–10, 77
 SYNC DELAY WORD 13–15
 Sync Delay Word 13
 Sync delay word 80
 sync delay word 13–15

T

TB0 – TB8 40–41

TBC0 – TBC4 40–41
 TBX 40–41
 TCO 40–41
 TDD0 – TDD4 40, 42
 TDM0 – TDM1 40, 42
 TDW 40–41, 80
 TERMINATION DISPLAY WORD 39–41
 Termination Display Word 39
 Termination display word 80
 termination display word 39–41
 TF0 – TF3 40–41
 TFC0 – TFC4 40–41
 TIC 40–41
 TTRB 40–41
 TTRF 40–41
 TUC 40, 42
 TUH 40–41
 TUS 40–41

U

UNDERLINE 35, 78
 underline 35
 User address format 7–8
 user address format 7, 10–11
 USF 74, 76

V

vertical 29