

# SIEMENS

## ICs for Consumer Electronics

### MEGATEXT

#### Display Register Control Routines

Edition 10.94

<b>MEGATEXT® Display Register Control Routines</b>	
<b>Revision History: Original Version 10.94</b>	
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

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### 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:

<b>b7</b>	<b>b6</b>	<b>b5</b>	<b>b4</b>	<b>b3</b>	<b>b2</b>	<b>b1</b>	<b>b0</b>
-----------	-----------	-----------	-----------	-----------	-----------	-----------	-----------

**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<sub>H</sub>, 0FF<sub>H</sub>, 12AA<sub>H</sub> are hexadecimal numbers. Binary numbers use a 'B' as a suffix: 00101100<sub>B</sub>, 11111111<sub>B</sub> 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 (I<sup>2</sup>C 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

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

##### Input Parameters

<b>R5 – R7</b>	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.
<b>R0</b>	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)

<b>DPTR</b>	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

<b>CY</b>	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

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

### Input Parameters

<b>R5 – R7</b>	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.
<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

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

### Output Parameters

<b>R6</b>	Row number where page cursor is actually located.
<b>R7</b>	Column number where page cursor is actually located.
<b>CY</b>	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

<b>Name</b>	<b>SET_PAGE_CURSOR_POSITION</b>
<b>Function</b>	Sets the position of the page cursor in the ISDA.

#### Input Parameters

<b>R6</b>	Row number where the page cursor is set to. Allowed input range: 0 – 25.
<b>R7</b>	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

<b>CY</b>	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

<b>Name</b>	<b>GET_SDW_BYTE</b>
<b>Function</b>	Reads one byte of the sync delay word.

#### Input Parameters

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

#### Output Parameters

<b>ACC</b>	Byte of the sync delay word.
<b>CY</b>	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

<b>Name</b>	<b>SET_SDW_BYTE</b>
<b>Function</b>	Writes one byte of the sync delay word.

#### Input Parameters

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

#### Output Parameters

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

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

### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

<b>Name</b>	<b>GET_DPW_BYTE</b>
<b>Function</b>	Reads one byte of the display position word.

#### Input Parameters

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

#### Output Parameters

<b>ACC</b>	Byte of the display position word.
<b>CY</b>	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

<b>Name</b>	<b>SET_DPW_BYTE</b>
<b>Function</b>	Writes one byte into the display position word.

#### Input Parameters

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

#### Output Parameters

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	<p>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.</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>
<b>DPTR</b>	<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 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.</p>

#### Output Parameters

<b>CY</b>	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

<b>Name</b>	<b>GET_ISDA_POSITION</b>
<b>Function</b>	Reads the actually adjusted ISDA position from the MEGATEXT display position word.

#### Output Parameters

<b>R5</b>	Row position. Gives the actually adjusted vertical position in rows.
<b>R6</b>	Line position. Gives the actually adjusted vertical position in TV lines. This position is used as an offset to the row position.
<b>R7</b>	Column position. Gives the actually adjusted horizontal position in columns.
<b>CY</b>	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

<b>Name</b>	<b>SET_ISDA_POSITION</b>
<b>Function</b>	Sets the ISDA-position parameters in the MEGATEXT display position word.

#### Input Parameters

<b>R5</b>	Row position. Allowed input range: 0 – 31. Defines the vertical position in rows.
<b>R6</b>	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.
<b>R7</b>	Column position. Allowed input range: 0 – 63. Defines the horizontal position in columns.

#### Output Parameters

<b>CY</b>	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

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

### Output Parameters

<b>CY</b>	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

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

### Output Parameters

<b>CY</b>	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

<b>Name</b>	<b>GET_PPW_BYTE</b>
<b>Function</b>	Reads one byte of the page position word.

#### Input Parameters

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

#### Output Parameters

<b>ACC</b>	Byte of the page position word.
<b>CY</b>	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

<b>Name</b>	<b>SET_PPW_BYTE</b>
<b>Function</b>	Writes one byte into the page position word.

#### Input Parameters

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

#### Output Parameters

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

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

#### Output Parameters

<b>CY</b>	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

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

#### Output Parameters

<b>CY</b>	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

<b>Name</b>	<b>GET_GPW_BYTE</b>
<b>Function</b>	Reads one byte of the graphic position word.

#### Input Parameters

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

#### Output Parameters

<b>ACC</b>	Byte of the graphic position word.
<b>CY</b>	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

<b>Name</b>	<b>SET_GPW_BYTE</b>
<b>Function</b>	Writes one byte into the graphic position word.

#### Input Parameters

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

#### Output Parameters

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

<b>Name</b>	<b>GET_GRAPHIC_POSITION</b>
<b>Function</b>	Reads the actually adjusted position of the graphic field from the MEGATEXT graphic position word.

#### Output Parameters

<b>R5</b>	Row position. Gives the actually adjusted vertical position in rows.
<b>R6</b>	Line position. Gives the actually adjusted vertical position in TV lines. This position is used as an offset to the row position.
<b>R7</b>	Column position. Gives the actually adjusted horizontal position in columns.
<b>CY</b>	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

<b>Name</b>	<b>SET_GRAPHIC_POSITION</b>
<b>Function</b>	Sets the graphic position parameters in the MEGATEXT graphic position word.

#### Input Parameters

<b>R5</b>	Row position. Allowed input range: 0 – 31. Defines the vertical position in rows.
<b>R6</b>	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.
<b>R7</b>	Column position. Allowed input range: 0 – 63. Defines the horizontal position in columns.

#### Output Parameters

<b>CY</b>	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

<b>Name</b>	<b>SET_GRAPHIC_ZOOM_HORIZONTAL</b>
<b>Function</b>	Sets the zoom factor for horizontal stretching of the graphic field.

### Input Parameters

<b>ACC</b>	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

<b>CY</b>	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

<b>Name</b>	<b>SET_GRAPHIC_ZOOM_VERTICAL</b>
<b>Function</b>	Sets the zoom factor for vertical stretching of the graphic field.

### Input Parameters

<b>ACC</b>	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

<b>CY</b>	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

<b>Name</b>	<b>GET_DCPW_BYTE</b>
<b>Function</b>	Reads one byte of the display cursor position word.

### Input Parameters

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

### Output Parameters

<b>ACC</b>	Byte of the display cursor position word.
<b>CY</b>	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

<b>Name</b>	<b>SET_DCPW_BYTE</b>
<b>Function</b>	Writes one byte into the display cursor position word.

### Input Parameters

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

### Output Parameters

<b>CY</b>	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

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

### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

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

### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

<b>Name</b>	<b>GET_DISPLAY_CURSOR_POSITION</b>
<b>Function</b>	Reads the actually adjusted position of the display cursor from the MEGATEXT display cursor position word.

### Output Parameters

<b>R4</b>	Row position. Gives the actually adjusted vertical position in rows.
<b>R5</b>	Line position. Gives the actually adjusted vertical position in TV lines. This position is used as an offset to the row position.
<b>R6</b>	Column position. Gives the actually adjusted horizontal position in columns.
<b>R7</b>	Pixel position. Gives the actually adjusted horizontal position in pixels. This position is used as an offset to the column position.
<b>CY</b>	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

<b>Name</b>	<b>SET_DISPLAY_CURSOR_POSITION</b>
<b>Function</b>	Sets the display cursor position parameters in the MEGATEXT display cursor position word.

#### Input Parameters

<b>R4</b>	Row position. Allowed input range: 0 – 31. Defines the vertical position in rows.
<b>R5</b>	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.
<b>R6</b>	Column position. Allowed input range: 0 – 63. Defines the horizontal position in columns.
<b>R7</b>	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

<b>CY</b>	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

<b>Name</b>	<b>SET_CURSOR_MODE</b>
<b>Function</b>	Sets the display cursor mode.

#### Input Parameters

<b>ACC</b>	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

<b>CY</b>	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

<b>Name</b>	<b>SET_CURSOR_BLOCK</b>
<b>Function</b>	Sets the character-related cursor to block format.

### Output Parameters

<b>CY</b>	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

<b>Name</b>	<b>SET_CURSOR_UNDERLINE</b>
<b>Function</b>	Sets the character-related cursor to underline format.

### Output Parameters

<b>CY</b>	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

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

#### Output Parameters

<b>CY</b>	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

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

#### Output Parameters

<b>CY</b>	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

<b>Name</b>	<b>SET_PAGE_CURSOR_ON</b>
<b>Function</b>	Sets the page cursor on (active).

#### Output Parameters

<b>CY</b>	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

<b>Name</b>	<b>SET_PAGE_CURSOR_OFF</b>
<b>Function</b>	Sets the page cursor off (passive).

#### Output Parameters

<b>CY</b>	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

<b>Name</b>	<b>SET_DISPLAY_CURSOR_ON</b>
<b>Function</b>	Sets the display cursor on (active).

#### Output Parameters

<b>CY</b>	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

<b>Name</b>	<b>SET_DISPLAY_CURSOR_OFF</b>
<b>Function</b>	Sets the display cursor off (passive).

#### Output Parameters

<b>CY</b>	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

<b>Name</b>	<b>SET_PIXEL_CURSOR_FORMAT</b>
<b>Function</b>	Sets the format of the pixel cursor or switches the pixel cursor off.

#### Input Parameters

<b>ACC</b>	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

<b>CY</b>	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

<b>Name</b>	<b>GET_TDW_BYTE</b>
<b>Function</b>	Reads one byte of the termination display word.

#### Input Parameters

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

#### Output Parameters

<b>ACC</b>	Byte of the termination display word.
<b>CY</b>	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

<b>Name</b>	<b>SET_TDW_BYTE</b>
<b>Function</b>	Writes one byte into the termination display word.

#### Input Parameters

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

#### Output Parameters

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

<b>Name</b>	<b>GET_BOXMR_0_BYTE</b>
<b>Function</b>	Reads one byte of the box mask register 0.

#### Input Parameters

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

#### Output Parameters

<b>ACC</b>	Byte of the box mask register 0.
<b>CY</b>	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

<b>Name</b>	<b>SET_BOXMR_0_BYTE</b>
<b>Function</b>	Writes one byte into the box mask register 0.

#### Input Parameters

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

#### Output Parameters

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

<b>Name</b>	<b>GET_BOXMR_1_BYTE</b>
<b>Function</b>	Reads one byte of the box mask register 1.

#### Input Parameters

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

#### Output Parameters

<b>ACC</b>	Byte of the box mask register 1.
<b>CY</b>	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

<b>Name</b>	<b>SET_BOXMR_1_BYTE</b>
<b>Function</b>	Writes one byte into the box mask register 1.

#### Input Parameters

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

#### Output Parameters

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

<b>Name</b>	<b>GET_BOXDW_0_BYTE</b>
<b>Function</b>	Reads one byte of the box display word 0.

#### Input Parameters

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

#### Output Parameters

<b>ACC</b>	Byte of the box display word 0.
<b>CY</b>	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

<b>Name</b>	<b>SET_BOXDW_0_BYTE</b>
<b>Function</b>	Writes one byte into the box display word 0.

#### Input Parameters

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

#### Output Parameters

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

<b>Name</b>	<b>GET_BOXDW_1_BYTE</b>
<b>Function</b>	Reads one byte of the box display word 1.

#### Input Parameters

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

#### Output Parameters

<b>ACC</b>	Byte of the box display word 1.
<b>CY</b>	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

<b>Name</b>	<b>SET_BOXDW_1_BYTE</b>
<b>Function</b>	Writes one byte into the box display word 1.

#### Input Parameters

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

#### Output Parameters

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

<b>Name</b>	<b>GET_ISMR_0_BYTE</b>
<b>Function</b>	Reads one byte of the inner screen mask register 0.

#### Input Parameters

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

#### Output Parameters

<b>ACC</b>	Byte of the inner screen mask register 0.
<b>CY</b>	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

<b>Name</b>	<b>SET_ISMR_0_BYTE</b>
<b>Function</b>	Writes one byte into the inner screen mask register 0.

#### Input Parameters

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

#### Output Parameters

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

<b>Name</b>	<b>GET_ISMR_1_BYTE</b>
<b>Function</b>	Reads one byte of the inner screen mask register 1.

#### Input Parameters

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

#### Output Parameters

<b>ACC</b>	Byte of the inner screen mask register 1.
<b>CY</b>	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

<b>Name</b>	<b>SET_ISMR_1_BYTE</b>
<b>Function</b>	Writes one byte into the inner screen mask register 1.

#### Input Parameters

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

#### Output Parameters

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

<b>Name</b>	<b>GET_ISDW_0_BYTE</b>
<b>Function</b>	Reads one byte of the inner screen display word 0.

#### Input Parameters

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

#### Output Parameters

<b>ACC</b>	Byte of the inner screen display word 0.
<b>CY</b>	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

<b>Name</b>	<b>SET_ISDW_0_BYTE</b>
<b>Function</b>	Writes one byte into the inner screen display word 0.

#### Input Parameters

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

#### Output Parameters

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

<b>Name</b>	<b>GET_ISDW_1_BYTE</b>
<b>Function</b>	Reads one byte of the inner screen display word 1.

#### Input Parameters

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

#### Output Parameters

<b>ACC</b>	Byte of the inner screen display word 1.
<b>CY</b>	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

<b>Name</b>	<b>SET_ISDW_1_BYTE</b>
<b>Function</b>	Writes one byte into the inner screen display word 1.

#### Input Parameters

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

#### Output Parameters

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

<b>Name</b>	<b>GET_OSMR_BYTE</b>
<b>Function</b>	Reads one byte of the outer screen mask register.

##### Input Parameters

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

##### Output Parameters

<b>ACC</b>	Byte of the outer screen mask register.
<b>CY</b>	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

<b>Name</b>	<b>SET_OSMR_BYTE</b>
<b>Function</b>	Writes one byte into the outer screen mask register.

##### Input Parameters

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

##### Output Parameters

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

<b>Name</b>	<b>GET_OSDW_BYTE</b>
<b>Function</b>	Reads one byte of the outer screen display word.

##### Input Parameters

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

##### Output Parameters

<b>ACC</b>	Byte of the outer screen display word.
<b>CY</b>	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

<b>Name</b>	<b>SET_OSDW_BYTE</b>
<b>Function</b>	Writes one byte into the outer screen display word.

##### Input Parameters

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

##### Output Parameters

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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

<b>CY</b>	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

<b>Name</b>	<b>SET_CLUT_COLOR</b>
<b>Function</b>	Writes a new color to a CLUT.

#### Input Parameters

<b>ACC</b>	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.
<b>R4</b>	Color vector number. Allowed input range: 0 – 7. Each CLUT consists of 8 colors, numbered from 0 to 7.
<b>R5</b>	Red level (0 – 15).
<b>R6</b>	Green level (0 – 15).
<b>R7</b>	Blue level (0 – 15).

#### Output Parameters

<b>CY</b>	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

<b>Name</b>	<b>GET_RATT_BYTE</b>
<b>Function</b>	Reads one byte of the row attribute register.

#### Input Parameters

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

#### Output Parameters

<b>ACC</b>	Byte of the row attribute register.
<b>CY</b>	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

<b>Name</b>	<b>SET_RATT_BYTE</b>
<b>Function</b>	Writes one byte into the row attribute register.

#### Input Parameters

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

#### Output Parameters

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	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.
<b>DPTR</b>	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.
<b>R7</b>	Row number. Allowed input range: 0 – 25 (for ISDA), 31 (for OSDA and held rows).

#### Output Parameters

<b>CY</b>	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

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

#### Input Parameters

<b>R0</b>	<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>
<b>DPTR</b>	<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>
<b>R7</b>	<p>Row number. Allowed input range: 0 – 25 (for ISDA), 31 (for OSDA and held rows).</p>

### Output Parameters

<b>CY</b>	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.

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

<b>V-Delay</b>	Vertical delay
<b>VPS</b>	Video programming system
<b>VSYNC</b>	Vertical sync

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