

# TC1775

## 32-Bit Single-Chip Microcontroller

# 32bit

Microcontrollers



Never stop thinking.

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## TC1775 Documentation Addendum

**Revision History:**            **2002-07**

V 1.2

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Previous Version:            V1.1 2001-10, V 1.0 2001-07

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Page	Subjects (major changes since last revision)
–	changes from V 1.1 to V 1.2 see change bars;

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# 1 Introduction

This document describes corrections, changes, and improvements for the two parts of the TC1775 User’s Manual V2.0 2001-02, the System Units book and the Peripheral Units book. These corrections will be considered with the next update of these User’s Manual documents.

The referenced documents to this addendum are:

- TC1775 System Units User’s Manual, V2.0, Feb. 2001 ([Link to the PDF](#))  
Ordering No.: B158-H7780-X-X-7600
- TC1775 Peripheral Units User’s Manual, V2.0, Feb. 2001 ([Link to the PDF](#))  
Ordering No.: B158-H7781-X-X-7600
- TC1775 Data Sheet, V1.2, May 2002 ([Link to the PDF](#))

# 2 User’s Manual - System Units Part

## Page 1-3, Table 1-2

The definition of “U” must be changed into:

“Access permitted in User Mode 1 only.

*Note: User Mode definitions see bit PSW\_IO at Page 2-20”*

## Page 3-4

2nd paragraph, additional sentence after “(unconnected).”:

“If the external clock signal at XTAL1 is stopped e.g. for test purposes (not a normal operating condition), XTAL1 should be held at high level.”

## Page 3-18

The following paragraph will be added on the bottom of this page and before the “Note” paragraph on the next page:

“When a disabled module is switched on by writing an appropriate value to its MOD\_CLC register, status bit DISS changes from 1 to 0. During the phase, where the module becomes active any write access to corresponding module registers (when DISS is still set) will generate a bus error. Therefore, when enabling a disabled module, application software should check after activation of the module once whether DISS is already reset, before a module register will be written to.”

## Page 3-22, Table 3-5

The row for register STM\_CLC must be corrected into:

STM_CLC	STM	enabled	■	–	–	–	–	–
---------	-----	---------	---	---	---	---	---	---

**Page 5-7, Section 5.3.1**

The first sentence of the paragraph “When both of these conditions ....” is replaced by the following three sentences:

“When both of these conditions are met the  $\overline{\text{HDRST}}$  output is released and tri-stated by the TC1775. If within this tri-state phase  $\overline{\text{HDRST}}$  is still driven by an external device, the TC1775 remains in the reset condition as long as  $\overline{\text{HDRST}}$  is at low level. When  $\overline{\text{HDRST}}$  is again pulled to high level externally, the power-on reset sequence is terminated.”

**Page 5-7, Section 5.3.2**

The last two paragraphs from the bottom must be replaced by the following new paragraph (see CR106566):

“The external hardware reset pin  $\overline{\text{HDRST}}$  serves as an external reset input as well as a reset output. It is an active-low, bidirectional open-drain pin with an internal weak pull-up. An active-low signal at this pin causes the chip to enter its internal hardware reset sequence at the next system clock ( $f_{\text{SYS}}$ ) transition. For synchronization purposes,  $\overline{\text{HDRST}}$  must be at low level at least for two system clock cycles.  $\overline{\text{HDRST}}$  is not actively driven by the TC1775 during a hardware reset sequence. If other hardware is reset by the signal line connected to  $\overline{\text{HDRST}}$ , the  $\overline{\text{HDRST}}$  driving device must meet timing requirements for this hardware. After the TC1775 has terminated its hardware reset sequence internally, flag RST\_SR.HDRST is set.

When  $\overline{\text{HDRST}}$  is driven low by the TC1775 in software reset or in Watchdog Timer reset, the duration of  $\overline{\text{HDRST}}$  low pulse is  $16 \times t_{\text{SYS}}$  ( $t_{\text{SYS}}$  is the period of the system clock with frequency  $f_{\text{SYS}}$ ), this means 400 ns at  $f_{\text{SYS}} = 40 \text{ MHz}$ .”

**Page 5-8 Section 5.3.3**

At the end of this section the following paragraph should be added:

“During a software reset operation the  $\overline{\text{HDRST}}$  output signal is generated when RSTREQ.RREXT = 1. Note, that if after the end of such a software reset operation ( $\overline{\text{HDRST}}$  output released and tri-stated by the TC1775)  $\overline{\text{HDRST}}$  is still driven low by an external device, the TC1775 detects an external hardware reset condition and starts executing it as described in [Section 5.3.2](#).”

**Page 5-11, Table 5-2**

The two rows with Module/Function = “System Timer” and “Reset output pin  $\overline{\text{HDRST}}$ ” must be corrected into:

System Timer	■	■	Optional	Not affected	■
Reset output pin $\overline{\text{HDRST}}$	■	■	Optional	Tri-stated	■



**Page 5-9, Last paragraph of 5.3.4**

In the last but one sentence "RSDBG, " should be deleted. This flag is not available.

**Page 5-9**

The text in the last paragraph beginning with "If a Watchdog Timer error occurs ...." until the end of this section on the next page 5-10 should be replaced by the following new paragraph:

"However, the reset circuitry of the TC1775 is designed to detect a double reset condition of the Watchdog Timer. If a Watchdog induced reset occurs twice, a severe system malfunction is assumed and the TC1775 is held in reset until a power-on reset or hardware reset occurs (see also [Chapter 18](#))."

**Page 6-9, Second paragraph of 6.3.3.5**

The following sentence is added at the end of this paragraph: "Note also that the external NMI status flag NMISR.NMIEXT is not set after this Deep Sleep Mode exit case because the reset sequence clears NMISR.NMIEXT again after it has been set shortly through the falling edge on the NMI pin."

**Page 7-5**

In the last three paragraphs of the description below "Segment 11", the "and" between the address region values should be replaced by "to".

**Page 8-5**

In Table 8-2 the second column should be named "CBP" instead of "CPB".

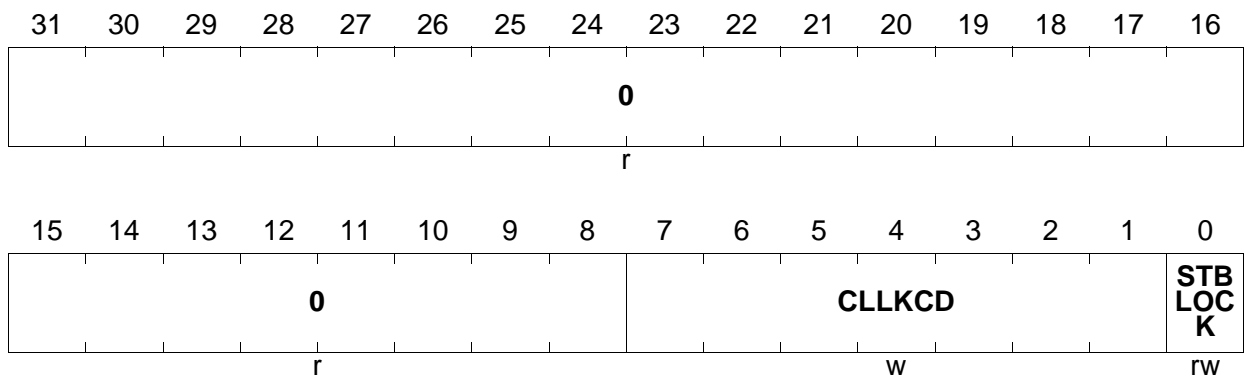
Page 9-11

The description of register DMU\_CON must be corrected in the following way:

**DMU\_CON**

**DMU Control Register**

**Reset Value: 0000 0000<sub>H</sub>**

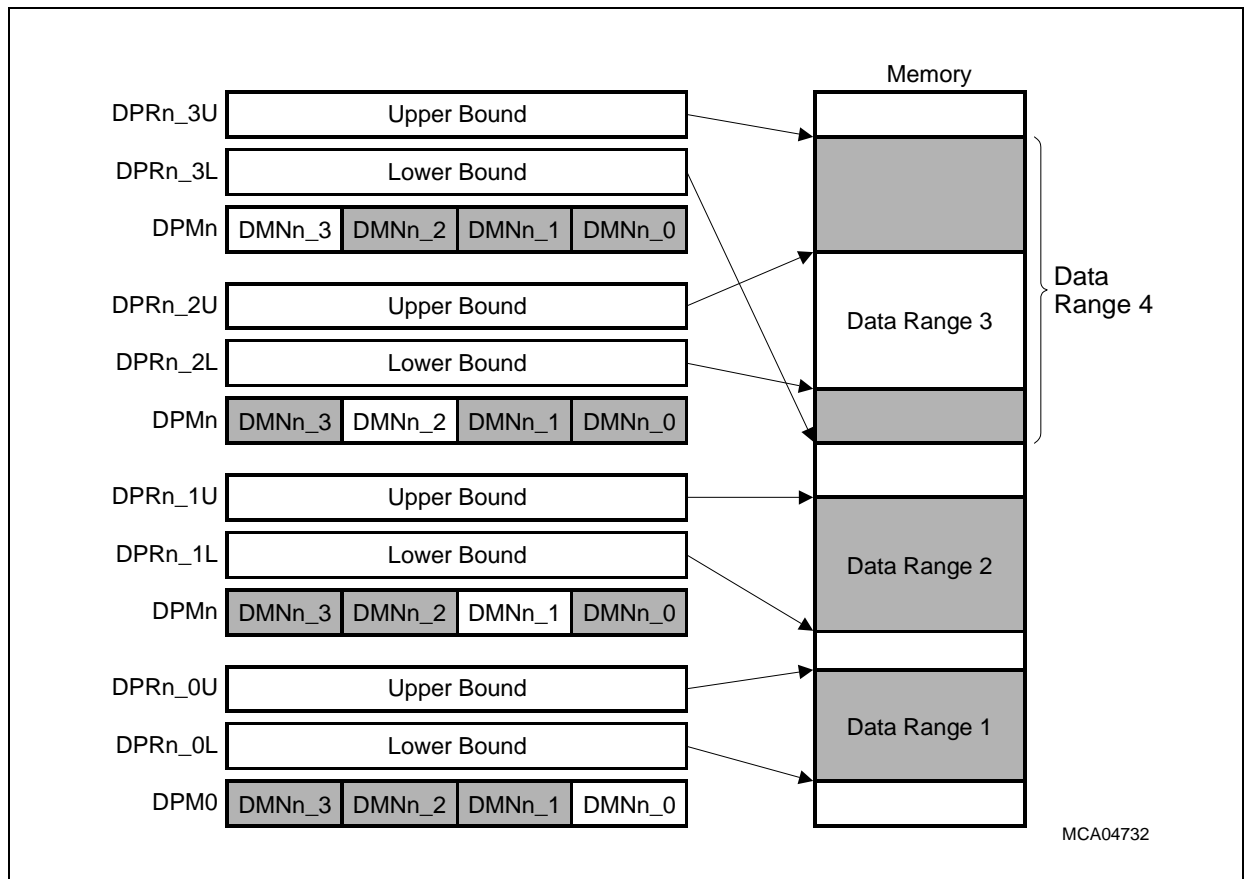


Field	Bits	Type	Description
STBLOCK <sup>1)</sup>	0	rw	<b>Lock Standby Data Memory</b> Bit can be set by writing a 1 to it (in supervisor mode only). Bit can only be reset (in supervisor mode only) by writing a 0 to it together with the appropriate clear lock code. 0 Normal operation of standby data memory 1 Standby data memory is locked. No read or write access of/to standby SRAM is possible. The state of STBLOCK after power-on reset is undefined. A hardware or software reset does not effect this bit.
CLLKCD	[7:1]	w	<b>Clear Lock Code</b> This bit field has to be written with 65 <sub>H</sub> together with STBLOCK = 0 to reset the lock of the standby RAM.
0	[31:8]	r	<b>Reserved</b> ; read as 0; should be written with 0.

<sup>1)</sup> This bit field is not available in the TC1775 BA11 step.

**Page 10-17**

The Data Range numbering in **Figure 10-2** is not correct. The figure must be updated in the following way:



**Figure 10-2 Example Configuration of a Data Protection Register Set**

**Page 11-54, Figure 11-18**

In Figure 11-18 the block for registers P13\_ALTSEL0 and P13\_ALTSEL1 must be exchanged.

**Page 11-36, Table 11-14**

Column "Alternate Function": "EBU inactive" must be replaced by "Trace disabled". Also the note below Table 11-14 is changed into "Alternate functions of Port 5 (trace outputs) are controlled by hardware (bit SCU\_CON.ETEN, see also **Chapter 4**)".

**Page 12-15, Second paragraph**

"A[26:0]" should be replaced by "A[25:0]".

**Page 12-19, 12-20**

In **Table 12-8** several parts are not correct. The following table shows only the corrected rows of **Table 12-8**.

**Table 12-8 Data Assembly/Disassembly**

FPI Bus Access Width	Data Width of External Device	FBU operation for demultiplexed access	$\overline{BC3}$	$\overline{BC2}$	$\overline{BC1}$	$\overline{BC0}$
16-bit	8-bit	first Byte access with $A[0] = 0$	high	high	high	low
		second Byte access with $A[0] = 1$ <sup>1)</sup>				
32-bit	8-bit	first Byte access with $A[1:0] = 00_B$	high	high	high	low
		second Byte access with <sup>1)</sup> $A[1:0] = 01_B$				
		third Byte access with <sup>1)</sup> $A[1:0] = 10_B$				
		fourth Byte access with <sup>1)</sup> $A[1:0] = 11_B$				
	16-bit	first Halfword access on byte lanes 0 and 1 with $A[1:0] = 00_B$	high	high	low	low
second Halfword access on byte lanes 2 and 3 with $A[1:0] = 10_B$ <sup>2)</sup>						

<sup>1)</sup> This byte access is performed automatically in consecutive to the previous byte access.

<sup>2)</sup> This half-word access is performed automatically in consecutive to the pervious halfword access.

**Page 12-21, 12-22 (Figure 12-6), and 12-62**

The TC1775 provides an additional demultiplexed read timing feature called “Early Sample”. This feature is shown in the corrected **Figure 12-6** and controlled via bit 26 (called ES for “Early Read Sample Select”) in register EBU\_BUSCONx. EBU\_BUSCONx.ES must be added as described on **Page 10**).

Due to this new feature, the paragraph starting with “Phase 2: ...” on page 12-21 must be replaced by the following description:

- “Phase 2: This cycle is always part of a read access. Please note that the read signal is deactivated (high) on the falling edge of CLKOUT. The data input is sampled and latched with this clock edge ( $EBU\_BUSCONx.ES = 0$ ) or with the rising edge of CLKIN when early sample is enabled with  $EBU\_BUSCONx.ES = 1$ .”

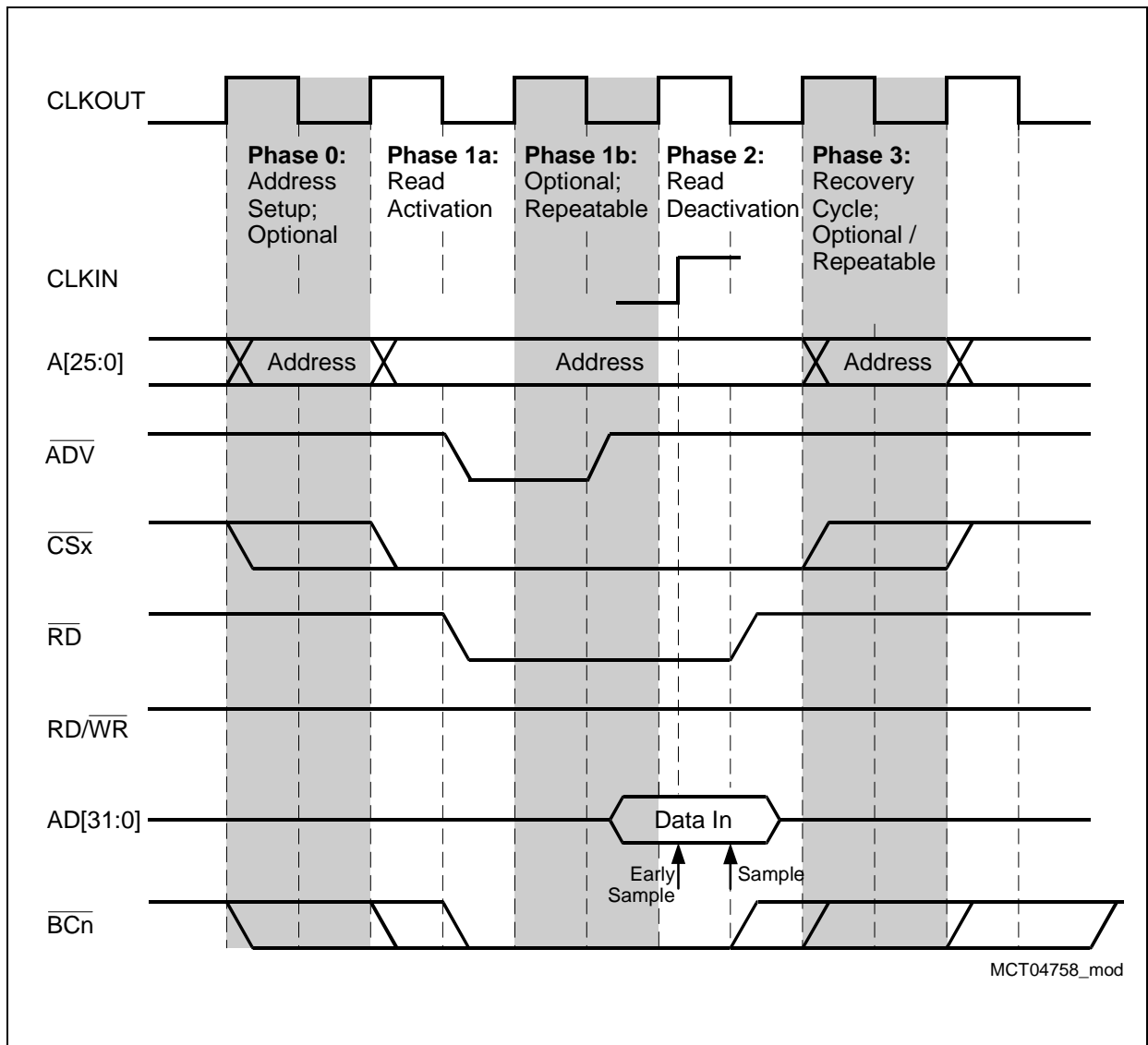


Figure 12-6 Basic Read Access Timing in Demultiplexed Mode

**EBU\_BUSCONx (x = 3-0)**

**EBU Bus Configuration Register x**

Reset Value: E802 61FF<sub>H</sub>

31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
WR DIS	ALEC	BCGEN	ES	AGEN	CMULTR	WAIT	WAITINV	SETUP	PORTW						
rw	rw	rw	rw	rw	rw	rw	rw	rw	rw						
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
WAITRDC					WAITWRC			HOLDC	RECOVC	CMULT					
rw					rw			rw	rw	rw					

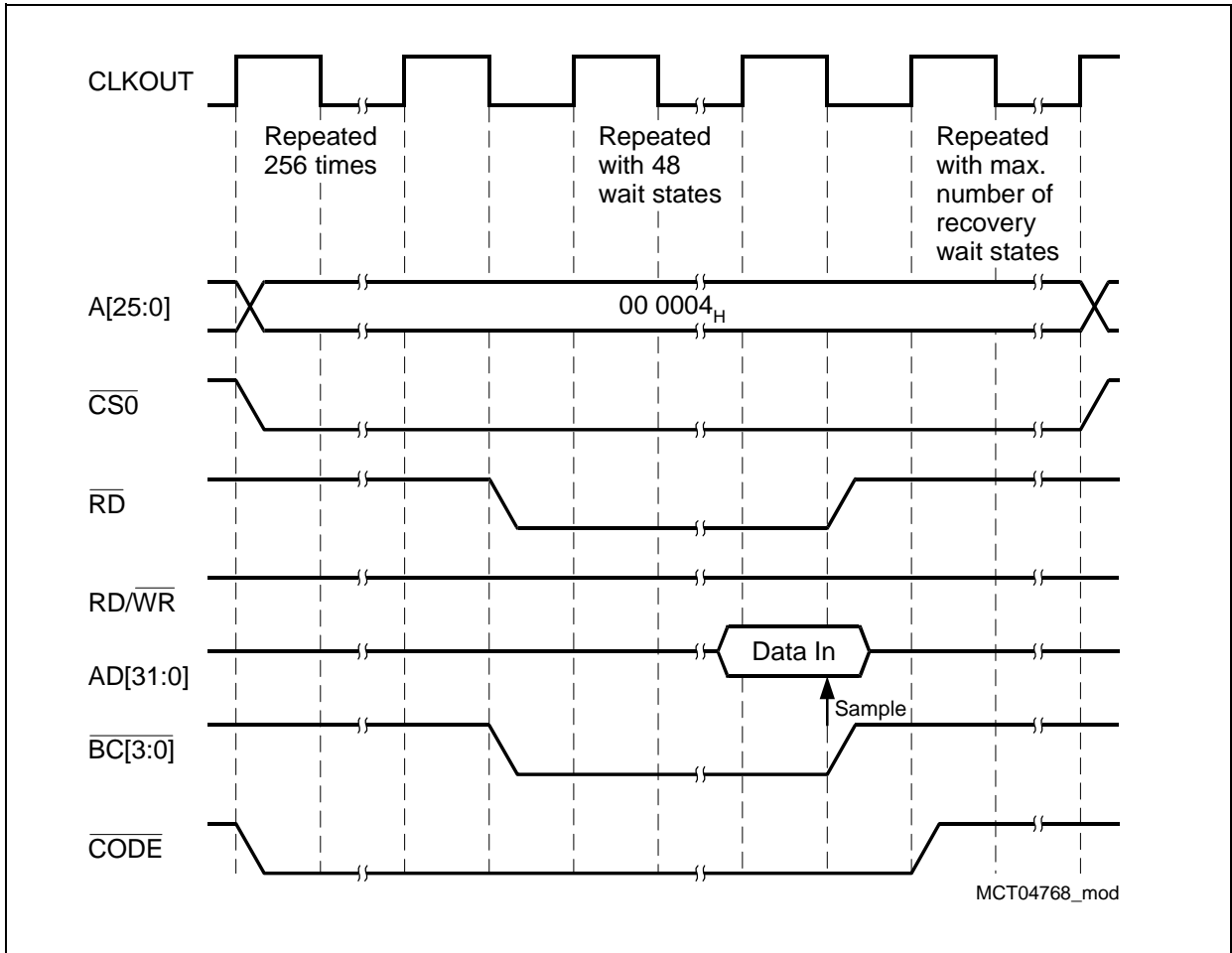
<b>ES</b>	26	rw	<p><b>Early Read Sample Select</b></p> <p>0 Reads are performed with regular timing. Data is sampled with the falling edge of CLKOUT. (default after reset)</p> <p>1 Early read sampling of data is enabled. Data is sampled with the rising edge of CLKIN.</p>
-----------	----	----	---

**Page 12-42, Bullet list**

Bit WAITRDC in the last but one entry of the bullet list belongs to register EBU\_BUSCON0 instead of EBU\_BUSCON.

**Page 12-44, Update of Figure 12-16**

Figure 12-16 should be update with the following drawing:



**Figure 12-16 EBU Boot Process after Reset**

**Page 12-61**

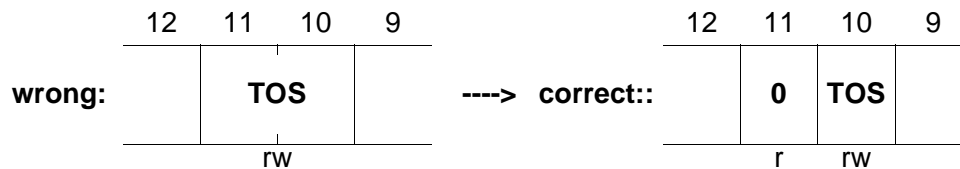
Bit EBU\_ADDSELx.REGEN is of type "rw" instead of "r". It can be written, of course.

**Page 12-70**

The correct reset value of EBU\_EXTCON should be 3C08 0240<sub>H</sub>.

**Page 13-5**

Bit field TOS in the service request control registers is implemented as a single bit and not as a 2-bit bit field. This affects all SRC registers of the TC1775 (except PCP)!



<b>TOS</b>	10	rw	<b>Type of Service Control</b> 0 CPU service is initiated. 1 PCP service is initiated.
<b>0</b>	11	r	<b>Reserved</b> ; read as 0; should be written with 0.

Section 13.3.1.5 must be corrected in the following way:

**13.3.1.5 Type-of-Service Control (TOS)**

There are two Service Providers for service requests in the TC1775, the CPU and the PCP. The TOS bit is used to select whether a service request generates an interrupt to the CPU (TOS = 0) or to the PCP (TOS = 1).

**Page 13-23**

CPU\_SRC.TOS must be corrected according the description above.

**Page 14-4**

“Note” paragraph should be deleted and its text (sentence) should be added to the table footnote <sup>1)</sup> (at its end).

**Page 14-12, Section 14.4.1, second paragraph**

In the first sentence “The CPU detects a zero-to-one transition of the NMI input signal...” should be corrected into “The CPU detects a one-to-zero transition of the  $\overline{\text{NMI}}$  input signal”

**Page 14-13**

The following “Note” paragraph should be added to the description of bit NMIEXT:

*Note: This bit is reset after an exit from Deep Sleep Mode through pin  $\overline{\text{NMI}}$  when bit PMG\_CON.DSRW has been set before (full reset sequence executed).*



**Page 15-7, Section 15.3.1.3**

In this paragraph "R5 and R6" should be replaced by "R4 and R5".

**Page 15-80**

Description of SUB.F instruction should be corrected form "Subtract the sign-extended contents ...." into "Subtract the zero-extended contents ....". Further, the "Operation" code should be "R[b] = R[b] - zero\_ext(FPI[R[a]])".

**Page 16-7, Table 16-2**

The definition for the acknowledge code ACK must be corrected into:

- ACK = 01<sub>B</sub>: SPT
- ACK = 10<sub>B</sub>: RTY
- ACK = 11<sub>B</sub>: ERR

**Page 16-8, Table 16-4**

In the TC1775, block transfers are not used by the FPI Bus master units. Therefore, Table 16-4 with the last sentence of the paragraph above will be modified into:

"Note that block transfers (OPC = 0100<sub>B</sub> to 0110<sub>B</sub>) and split transactions (OPC = 1000<sub>B</sub> to 1110<sub>B</sub>) are not used in the TC1775.

**Table 16-4 FPI Bus Operation Codes (OPC)**

OPC	Description	OPC	Description
0000 <sub>B</sub>	Single Byte Transfer (8-bit)	1000 <sub>B</sub>	Split Block Transfer Request (1 transfer)
0001 <sub>B</sub>	Single Half-Word Transfer (16-bit)	1001 <sub>B</sub>	Split Block Transfer Request (2 transfers)
0010 <sub>B</sub>	Single Word Transfer (32-bit)	1010 <sub>B</sub>	Split Block Transfer Request (4 transfers)
0011 <sub>B</sub>	Single Double-Word Transfer (64-bit)	1011 <sub>B</sub>	Split Block Transfer Request (8 transfers)
0100 <sub>B</sub>	2-Word Block Transfer	1100 <sub>B</sub>	Split Block Response
0101 <sub>B</sub>	4-Word Block Transfer	1101 <sub>B</sub>	Split Block Failure
0110 <sub>B</sub>	8-Word Block Transfer	1110 <sub>B</sub>	Split Block End
0111 <sub>B</sub>	Reserved	1111	No operation

*Note: Shaded FPI Bus transactions are not used in the TC1775.*"

**Page 16-15**

BCU\_SRC.TOS must be corrected according the description on [Page 12](#).

**Page 17-1, Bullet list**

The two points in the bullet list:

- Counting begins at power-on reset
- Continuous operation is not affected by any reset condition except power-on reset

should be replaced by the following three bullet points:

- Counting starts automatically after a reset operation
- STM is reset under following reset causes (see also Chapter 5.3):
  - Wake-up reset (PMG\_CON.DSRW must be set)
  - Watchdog reset
  - Software reset (RST\_REQ.RRSTM must be set)
  - Power-on reset
- STM is not reset at a hardware reset ( $\overline{\text{HDRST}} = 0$ )

**Page 18-2**

The first sentence of the last but one paragraph “Double Reset Detection” must be replaced by the following sentence:

“If a Watchdog induced reset occurs twice, a severe system malfunction is assumed and the TC1775 is held in reset until a power-on reset or hardware reset occurs.”

**Page 18-18**

The second paragraph “Double Watchdog Errors are detected .....” must be replaced by the following paragraphs:

“The purpose of the Double Watchdog Error feature is to avoid loops such as: Reset - software does not start correctly - prewarning - watchdog reset - software does not start correctly - .....

The WDT has an internal counter that generates internally a constant reset after a second watchdog error. This counter can be cleared only by external reset sources (power-on reset or hardware reset).”

**Page 19-15**

RTC\_SRC.TOS must be corrected according the description on [Page 12](#).

**Page 18-29**

In table cell “Field”, bit name for bit 0 should be “ENDINIT”.

**Page 20-15**

SBSRC0.TOS must be corrected according the description on [Page 12](#).

**Page 20-27**

The functionality described in section 20.4.5 "Trace with External Bus Address" is not available. Therefore, this section must be deleted.

**Page 21-1, Table 21-1**

The definition of "U" must be changed into:

"Access permitted in User Mode 1 only.

**Page 21-10**

In Table 21-4, a "32" should be added to the "Access Mode" "Read" and "Write" cells for PCP Data Memory and PCP Code Memory (as in Table 15-14 on page 15-93).

**Pages 21-21 and 21-21**

The long name (description) of registers TB and RB in Table 21-5 must be corrected:

- SSC0\_TB = "SSC0 Transmitter Buffer Register"
- SSC0\_RB = "SSC0 Receiver Buffer Register"
- SSC1\_TB = "SSC1 Transmitter Buffer Register"
- SSC1\_RB = "SSC1 Receiver Buffer Register"

**Page 21-46 and 21-51**

The long name (description) of registers MSS0 and MSS1 in Table 21-5 must be corrected:

- ADC0\_MSS0 = "ADC0 **Module** Service Request Status Register 0"
- ADC0\_MSS1 = "ADC0 **Module** Service Request Status Register 1"
- ADC1\_MSS0 = "ADC1 **Module** Service Request Status Register 0"
- ADC1\_MSS1 = "ADC1 **Module** Service Request Status Register 1"

### 3 User's Manual - Peripheral Units Part

#### Page 2-12, Second paragraph

" $\pm 16$ " and in asynchronous modes and " $\pm 4$ " should be replaced by " $\div 16$ " and " $\div 4$ ".

#### Page 2-24

"FDV contains the .." should be corrected into "FD\_VALUE contains the ...".

#### Pages 2-25 and 2-26

The long name (description) of registers TBUF and RBUF in must be corrected:

- TBUF = "Transmit Buffer Register"
- RBUF = "Receive Buffer Register"

This correction also requests a change on the bottom of pages 1-7 and 2-3: correct is "... On a transmit buffer .." and "... On a receive buffer ..".

#### Page 2-35

Bit field TOS of all ASC0 and ASC1 SRC registers must be corrected according the description on [Page 12](#).

#### Pages 3-21

The long name (description) of registers TB and RB in must be corrected:

- TB = "Transmit Buffer Register"
- RB = "Receive Buffer Register"

#### Page 3-18

After the last paragraph (and therefore before the note on the next page), the following paragraph should be added for clarification:

"When a disabled module is switched on by writing an appropriate value to its MOD\_CLC register, status bit DISS changes from 1 to 0. During the phase, where the module becomes active any write access to corresponding module registers (when DISS is still set) will generate a bus error. Therefore, when enabling a disabled module, application software should check after activation of the module once whether DISS is already reset, before a module register will be written to."

#### Page 3-27

Bit field TOS of all SSC0 and SSC1 SRC registers must be corrected according the description on [Page 12](#).

**Page 4-86**

CAN\_SRC[7:0].TOS must be corrected according the description on [Page 12](#).

**Page 5-8**

Typo: second paragraph “The SDLM ...” under 5.1.4.3: “... Bus-side receive buffer ...”

**Page 5-60**

SDLM\_SRC[1:0].TOS must be corrected according the description on [Page 12](#).

**Page 6-39 and 6-40**

Bits T2ADIR and T2BDIR should be marked as “rh” instead of “rw”.

**Page 6-59**

GPTU\_SRC[7:0].TOS must be corrected according the description on [Page 12](#).

**Page 7-47**

Table 7-2 must be exchanged with the following table (shaded cells are different):

**Table 7-2 Selection of GTC Output Operations and Action Transfer Modes**

Bit Field OCM[2:0]	Local GTC Capture or Compare Event	M1O, M0O	State of Local Data Output Line
0 0 0	not occurred occurred	0 0 0 0	not modified not modified
0 0 1	not occurred occurred	0 0 0 1	not modified inverted
0 1 0	not occurred occurred	0 0 1 0	not modified 0
0 1 1	not occurred occurred	0 0 1 1	not modified 1
1 0 0	not occurred occurred	M1I M0I M1I M0I	modified according M1I, M0I modified according M1I, M0I
1 0 1	not occurred occurred	M1I M0I 0 1	modified according M1I, M0I inverted
1 1 0	not occurred occurred	M1I M0I 1 0	modified according M1I, M0I 0
1 1 1	not occurred occurred	M1I M0I 1 1	modified according M1I, M0I 1

**Page 7-49**

Text in brackets will be added at the end of the first bullet paragraph under "Architecture":  
"(YI of LTC00 is always 0000<sub>H</sub>)"

**Page 7-51**

Text in brackets will be added at the end of the first bullet paragraph under "Capture Mode": "(LTC00 always copies 0000<sub>H</sub>)"

**Page 7-52**

3. paragraph from the top "Note: ...": in this Note paragraph, "GTC" and "GTCXR" must be replaced by "LTC" and "LTCXR".

**Page 7-53**

Table 7-3 must be exchanged with the following table:

**Table 7-3 Selection of LTC Output Operations and Action Transfer Modes**

Bit Field OCM[2:0]	Local LTC Capture or Compare Event	M1O, M0O	State of Local Data Output Line
0 0 0	not occurred occurred	0 0 0 0	not modified not modified
0 0 1	not occurred occurred	0 0 0 1	not modified inverted
0 1 0	not occurred occurred	0 0 1 0	not modified 0
0 1 1	not occurred occurred	0 0 1 1	not modified 1
1 0 0	not occurred occurred	M1I M0I M1I M0I	modified according M1I, M0I modified according M1I, M0I
1 0 1	not occurred occurred	M1I M0I 0 1	modified according M1I, M0I inverted
1 1 0	not occurred occurred	M1I M0I 1 0	modified according M1I, M0I 0
1 1 1	not occurred occurred	M1I M0I 1 1	modified according M1I, M0I 1

**Page 7-84**

The code

```

if (GTck.Capture_opposite_timer) then
    GTck.X = GTm.Timer
else .....

```

must be corrected into

```

if (GTck.Capture_opposite_timer) then
    GTck.X = GT!m.Timer
else .....

```

**Page 7-90**

Table row "LTck.X\_write\_access": comment "Internal value set to indicate the LTck.X was modified ...." is extended into "Internal value set to indicate the LTck.X was modified (written, incremented, or reset) ...."

**Page 7-96**

Bit 0 to 5 of FPCCTR1 are "rwh" bits (not "rw" bits). The paragraph "Bit protection is ..." in the bit description will be completed by: "(see also Note on **Page 7-124**)." The Note on page 7-124 is described at section "**Page 7-124 to 7-126**" of this document.

**Pages 7-99 and 7-100**

Bits PDLCTR.ERR0 and PDLCTR.ERR1 are "rh" instead of "rw".

**Page 7-104**

The bit description for bit PLLCTR.PEN must be completed with the following sentence: "Bit protection is implemented for PEN to allow read-modify-write instructions. (see also Note on **Page 7-124**)." The Note on page 7-124 is described at section "**Page 7-124 to 7-126**" of this document.

**Page 7-109**

Description of bit field GTCTRm.MUX should be extended as follows:

- 000 = Clock bus line CLK0 selected
- 001 = Clock bus line CLK1 selected
- 010 = Clock bus line CLK2 selected
- 011 = Clock bus line CLK3 selected
- 100 = Clock bus line CLK4 selected
- 101 = Clock bus line CLK5 selected
- 110 = Clock bus line CLK6 selected
- 111 = Clock bus line CLK7 selected



**Page 7-117**

The description of bit CUD must be corrected in the following way:

CUD	9	rwh	<p><b>Timer Reset Mode: Coherent Update Enable</b></p> <p>0 Select line output SO is not toggled on timer reset overflow.</p> <p>1 Select line output SO is toggled on next timer reset overflow.</p> <p>When CUD is set by software it remains set until the next timer reset overflow (LTCK reset event) occurs and is cleared by hardware afterwards. When CUD is set, it cannot be reset by software by writing a 0 to it.</p>
-----	---	-----	--

**Page 7-118**

Description of bit field LTCTRk.OCM must be corrected as follows:

OCM = X11<sub>B</sub>: LTCK data output line is forced with 1.

**Page 7-124 to 7-126**

The type of all “rw” bits of registers SRS0, SRS1, SRS2, and SRS3 must be changed into “rwh”. Further the following footnote must be added to “rwh” bits in the register bit description tables: “Bit protection is implemented to allow “read-modify-write” instructions.”

Page 7-124 on top, below paragraph “7.2.11 ...”: the following note paragraph will be added:

*Note: The write protected bits in the Service Request State Registers are not changed during a read-modify-write instruction, i.e. when hardware sets e.g. an request state bit between the read and the write of the read-modify- write sequence. It is guaranteed that only the intended bit(s) is/are effected by the write-back operation.*

**Page 7-132**

GPTA\_SRC[53:00].TOS must be corrected according the description on [Page 12](#).

**Page 8-7**

The paragraph below Figure 8-9 becomes replaced by the following one:

The channel injection request control register CHIN contains a conversion request bit CINREQ, a control bit CIREN for selecting the cancel inject repeat feature, a control bit field (EMUX) for external multiplexer settings, a control bit RES for selecting the resolution of the ADC, and the channel number CHNRIN to be converted.

### Page 8-18

The beginning "On a timer overflow" of the last sentence in the paragraph below Figure 8-3 must be replaced by "If the timer = 0".

### Page 8-31

The formula for  $f_{ANA}$  in the middle of the page is wrong. The correct formula is:

$$f_{ANA} = \frac{f_{BC}}{CPS + 3} = \frac{1}{CPS + 3} \times \frac{f_{DIV}}{CTC + 1}$$

### Page 8-34

The first formula on this page should be replaced by

$$\begin{aligned} & "V_{AREF}[0] \leq V_{DDA} + 0.1V ; V_{DDA} \leq 5V" \\ & "V_{AREF}[0] \leq V_{DDM} + 0.05V ; V_{DDM} \leq 5V" \end{aligned}$$

Further on the bottom the relation should be corrected into

$$\begin{aligned} & "0 V \leq V_{AREF} \leq V_{DDM} + 0.1 V" \\ & "0 V \leq V_{AREF} \leq V_{DDM} + 0.05 V" \end{aligned}$$

At the bottom of this page, the following two additional notes should be added:

*Note: Is is not recommended in general to set  $V_{AREF}$  below 50% of  $V_{DDM}$ .*

*Note: The analog input voltages  $V_{AIN}$  must be in the range between  $V_{AGND}$  and the selected  $V_{AREF}$ .*

### Page 8-41

The 2nd sentence in section "8.1.8.3 Timing of external Multiplexer" is extended:

"Therefore, the information to drive an external multiplexer is available one  $f_{ADC}$  clock cycle before the sample time begins".

### Page 8-56 and 8-57

The register long name of MSS0, MSS1, and SRNP in Table 8-13 must be corrected:

- MSS0 = "Module Service Request Status Register 0"
- MSS1 = "Module Service Request Status Register 1"
- SRNP = "Service Request Node Pointer Register"

### Page 8-92

Bit field TOS of all ADC0 and ADC1 SRC registers must be corrected according the description on [Page 12](#).

## 4 Data Sheet

No corrections known.

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