



# 8xC196MC Microcontroller

Specification Update

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*April 1998*

**Notice:** The 80xC196MC microcontroller may contain design defects or errors known as errata which may cause the 80xC196MC microcontroller's behavior to deviate from published specifications. Current characterized errata are documented in this specification update.

Order Number: 272989-004



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# Revision History

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Rev. Date	Version	Description
04/14/98	004	Added Documentation Change #3
05/13/97	003	Added Documentation Changes #1 and# 2.
03/12/97	002	Added Specification Change #1, IOH specification change on P5.4 and P2.6.
12/11/96	001	This is the new Specification Update document. It contains all identified errata published prior to this date.

# Preface

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As of July, 1996, Intel's Computing Enhancement Group has consolidated available historical device and documentation errata into this new document type called the Specification Update. We have endeavored to include all documented errata in the consolidation process, however, we make no representations or warranties concerning the completeness of the Specification Update.

This document is an update to the specifications contained in the Affected Documents/Related Documents table below. This document is a compilation of device and documentation errata, specification clarifications and changes. It is intended for hardware system manufacturers and software developers of applications, operating systems, or tools.

Information types defined in Nomenclature are consolidated into the specification update and are no longer published in other documents.

This document may also contain information that was not previously published.

## Affected Documents/Related Documents

Title	Order
<i>8XC196MC Industrial Motor Control Microcontroller datasheet</i>	270946-005
<i>8XC196MC, 8XC196MD, 8XC196MH Microcontroller User's Manual</i>	272181-002

## Nomenclature

**Errata** are design defects or errors. These may cause the published (component, board, system) behavior to deviate from published specifications. Hardware and software designed to be used with any component, board, and system must consider all errata documented.

**Specification Changes** are modifications to the current published specifications. These changes will be incorporated in any new release of the specification.

**Specification Clarifications** describe a specification in greater detail or further highlight a specification's impact to a complex design situation. These clarifications will be incorporated in any new release of the specification.

**Documentation Changes** include typos, errors, or omissions from the current published specifications. These will be incorporated in any new release of the specification.

**Note:** Errata remain in the specification update throughout the product's lifecycle, or until a particular stepping is no longer commercially available. Under these circumstances, errata removed from the specification update are archived and available upon request. Specification changes, specification clarifications and documentation changes are removed from the specification update when the appropriate changes are made to the appropriate product specification or user documentation (datasheets, manuals, etc.).

# Summary Table of Changes

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The following table indicates the errata, specification changes, specification clarifications, or documentation changes which apply to the 8xC196MC microcontroller product. Intel may fix some of the errata in a future stepping of the component, and account for the other outstanding issues through documentation or specification changes as noted. This table uses the following notations:

## Codes Used in Summary Table

### Stepping

X:	Errata exists in the stepping indicated. Specification Change or Clarification that applies to this stepping.
(No mark)	
or (Blank box):	This erratum is fixed in listed stepping or specification change does not apply to listed stepping.

### Page

(Page):	Page location of item in this document.
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### Status

Doc:	Document change or update will be implemented.
Fix:	This erratum is intended to be fixed in a future step of the component.
Fixed:	This erratum has been previously fixed.
NoFix:	There are no plans to fix this erratum.
Eval:	Plans to fix this erratum are under evaluation.

### Row

	Change bar to left of table row indicates this erratum is either new or modified from the previous version of the document.
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## Errata

No.	Steppings			Page	Status	Errata
	A	B				
1	X	X		6	NoFix	Indirect Shift Count Value

## Specification Changes

No.	Steppings			Page	Status	Specification Changes
1				7		IOH specification change on P5.4 and P2.6.

## Specification Clarifications

No.	Steppings			Page	Status	Specification Clarifications
						None for this revision of the specification update.

## Documentation Changes

No.	Document Revision	Page	Status	Documentation Changes
1	272181-002	9	Doc	Table number and page number changes on page 4-5.
2	272181-002	9	Doc	Code example label change on page 5-18.
3	272181-002	9	Doc	PTSCON register definition.



# Identification Information

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## Markings

Package	Stepping and Marking	
	A Step	B Step
64 SDIP	A	B
80 QFP	A	B
84 PLCC	A	B

# Errata

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## 1. Indirect Shift Count Value

**Problem:** The SHRL and SHLL instructions function correctly with count values 0-31, inclusive. However, a shift count value of XX100000b causes 32 shifts, which results in no shift taking place. With all other count values, the upper 3 bits are masked off and the remaining bits specify the number of shifts. Also, a shift count value of XX1XXXXXb causes the overflow flag and the overflow-trap flag to be set.

**Implication:** Customers using SHRL and SHLL instructions with a count value greater than 31 will be affected.

**Workaround:** Ensure that the shift count value never exceeds 31.

**Status:** NoFix. Refer to Summary Table of Changes to determine the affected stepping(s).

# Specification Changes

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**1.  $I_{OH}$  specification change on P5.4 and P2.6.**

**Issue:** Output high current ( $I_{OH}$ ) specification on P5.4 and P2.6 during reset has changed to -1 mA.

**Affected Docs:** *8XC196MC Industrial Motor Control Microcontroller* datasheet, Order Number 270946-005

# ***Specification Clarifications***

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None for this revision of the specification update.

# Documentation Changes

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## 1. Table number and page number changes on page 4-5.

**Issue:** On page 4-5, Section 4.1.5.2, sentence “Table 4-6 on page 4-8, Table 4-6 on page 4-8, and Table 4-6 on page 4-8 list...” should read “Table 4-4 on page 4-6, Table 4-5 on page 4-7, and Table 4-6 on page 4-8 list...”

**Affected Docs:** *8XC196MC, 8XC196MD, 8XC196MH Microcontroller User’s Manual*, Order #272181-002

## 2. Code example label change on page 5-18.

**Issue:** On page 5-18, in the code example, the label should read AD\_DONE\_ISR, instead of SERIAL\_RI\_ISR.

**Affected Docs:** *8XC196MC, 8XC196MD, 8XC196MH Microcontroller User’s Manual*, Order #272181-002

## 3. PTSCON register definition.

**Issue:** On page 5-33, the PTSCON register definition should read:

```
PTSCON  M1 M2 M0 0 UPDT 0 1 1
```

instead of:

```
PTSCON  M1 M2 M0 0 UPDT 0 1 0
```

**Affected Docs:** *8XC196MC, 8XC196MD, 8XC196MH Microcontroller User’s Manual*, Order #272181-002

