D7205A/D5205A/D4205A
occam 2 Toolset
Release Notes

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1   Compatibility

The following list of known problems and omissions applies to the occam 2 toolsets IMS D7205A, IMS D5205A, and IMS D4205A.

The tools within it (where applicable) supersede those provided with the ANSI C toolsets D*x*214A and D7214B. This is important if you are performing mixed language programming with both toolsets resident at the same time; this toolset and the tools and libraries within it should be used in preference to those in the above ANSI C toolsets.

2   Potential language change

The following section highlights an area of occam which may be subject to an implementation restriction in future toolset releases.

The length provided in a *counted array protocol* should not appear on the array side of the communication.

For instance, the following *counted array protocol* example:

```
c ? length::[buffer FROM 0 FOR length]
```

should be re-written with the equivalent line:

```
c ? length::buffer
```

3 Toolset errata

3.1 General

- The `iserver` used with this toolset can handle a maximum packet length of 1024 bytes. However, the occam Library has a maximum packet length of 512 bytes. This may lead to errors if the `iserver` should send a packet longer than 512 bytes to either an application or one of the tools in this toolset. This would only occur in extreme situations, such as using the `getenv` function to obtain an environment variable which is longer than 509 characters. This bug will be fixed in future releases of `iserver`.

  (0239)

- Due to a minor problem in this release with the usage of TCOFF representation of processor capabilities between tools (eg. hardware breakpoint support, FPU etc.), a problem arises when collecting some single processor programs with `icollect` when using the 'T' option.

  This problem does NOT affect the bootable code produced by the toolset.

  The problem manifests itself by making transputer types appear to migrate to another processor type between different tools:

Original type		Migrated type
T222	->	T212
T400	->	T425
T801	->	T805

  This is best illustrated by an example:

  eg.

```
oc foo.occ /t400
ilink foo.tco hostio.lib /f occama.lnk /t400
icollect foo.lku /t
```

  `ilist` will show the processor type as T425 in both `foo.tco` and `foo.lku`. More importantly, `idebug` will generate a serious error message when breakpoint debugging because it has been told to expect a T425 (and it finds a T400). When post-mortem debugging, `idebug` will generate a warning.

  Workaround

These problems primarily affect debugging where it is crucial that the transputer type used is the same as that specified in the configuration.

One solution is to configure for a single processor with `occonf` (ie. don't use the `icollect` single processor 'T' option).

If you must have single processor capability from `icollect`, the following table illustrates individual workarounds for the different processor types:

Processor Type	Workaround (for `icollect T` option)
T222	none - `idebug` will happily think the processor is a T212.
T400	debug in TB (or TA) mode and commit to T400 mode when debugged.
T801	debug in TA mode and commit to T801 mode when debugged.

(0539)

- The driver programs for the transputer hosted tools (except `idebug` and `idump`) monitor the error flag as the tool executes in order to catch any internal errors of the tool should they occur. If your hardware is configured as a `down` system and consists of more than one transputer, then the driver programs may be fooled into thinking the tool has set the error flag if the error flag on one of the extra processors is already set when the tool starts. In order to overcome the problem, you should run `ispy`, a network check program (or similar), or boot a dummy program that uses all the transputer processors in the network.

Note that, once cleared, the error flag on a transputer will only become set again if you execute an erroneous program on the transputer, or if you power off the transputers. The state of the error flag is undefined (hence it may be set) when the power is turned on.

(0555)

- The following error message can be set by any of the PC hosted tools.

`Runtime error R6000 - stack overflow`

This is a general error message that can occur using ANY of the tools. The message is generated at runtime by the Microsoft C runtime system and cannot be trapped by the tool. Work around by running the tool on a transputer.

(0680)

- In rare circumstances, the following error message (or variations of it with the tool name `<inmos library>`) can be produced by some tools.

`Fatal-<inmos library>-low level write failed 2`

Such an error can occur for instance, if the disk fills up during the writing of a file (although the tool itself will normally notice this and report the error in more detail).

(1180)

3.2   oc

- **ASSERT with INLINE test**

If the argument to **ASSERT** includes an **INLINE FUNCTION** call which expands to a constant, then the assertion is not tested at all (either at compile time or at run-time).

(1179)

- Running the compiler on different hosts can cause benign changes in the object code produced. These do not affect code behaviour, but can change code size.

(1195)

- **Counted array protocol**

When compiling code in **STOP** mode, oc may generate code which fails to detect invalid communication lengths (ie. lengths which are not compatible with the size of the array being used in the communication).

(1202)

3.3   ilink

- `ilink` does not detect I/O errors when writing files. Thus, if a disk is full, it appears to run normally although no file is created, nor diagnostic given.

(0623)

3.4   icollect

- There is a bug in `icollect`, using the 'T' option, whereby it informs

`idebug` that the type of a T801 or T805 transputer is a T800. This will cause `idebug` to generate a serious error when breakpoint debugging, or a warning when post-mortem debugging.

Note that this is a different bug to that mentioned in section 3.1.

Workaround

Either use `occonf` to configure the program, or debug in TA mode.

(0540)

- **D7205 (PC hosted version) only**

Use of the `icollect` 'M' option to specify a memory size for non-configured programs does not work if you use a trailing M character to specify a Megabyte (eg. 1M).

Workaround

Either use the transputer version of `icollect` instead of the PC hosted version or specify the memory size in Kilobytes (eg. 1024K instead of 1M).

(1192)

- **D7205 (PC hosted version) only**

Use of `icollect` to build a bootfile for a boot-from-rom system fails with the collector complaining that it cannot find the system libraries.

Workaround

Use the transputer version of `icollect` instead of the PC hosted version when building boot-from-rom bootfiles.

(1193)

- **D7205 (PC hosted version) only**

Use of the `icollect` 'K' option with a T800 `.lku` file incorrectly creates a `.rsc` file for a T425 instead of a T800.

Workaround

Use the transputer version of `icollect` instead of the PC hosted version.

March 12, 1991

(1199)

3.5   Imakef

- **imakef** does not specify the name for a **.cfb** file generated by **icollect** when generating a **.bxx** file using the 'T' option. This is only a problem if you create multiple **.bxx** bootables for different transputer types from the same source in the same directory.

Workaround

Rename the **.cfb** file after creating each **.bxx**.

(0529)

- **imakef** displays incorrect version date: it displays the year 1990 instead of 1991 when displaying its version string.

(1177)

- Using **imakef** to build a makefile for a class (eg. TA, TB) with the command line 'Y' option fails for non-configured programs (those built using the **icollect** 'T' option). This is because it passes the 'Y' option to **icollect** which cannot use the 'Y' option in the presence of a class.

Workaround

Edit the makefile produced by **imakef** and remove the 'Y' option from the $ (COLLECT) line.

(1186)

- **D7205 (PC hosted version) only**

If a makefile already exists, **imakef** will crash the PC when attempting to create a new version of the makefile.

Workaround

Either use the transputer version of **imakef** instead of the PC hosted version or delete the makefile before running **imakef**.

(1204)

3.6   isim

- **isim** does not perform a long shift if the shift value is not in the range

$0 \leq N \leq 64$. Rather than placing 0 in both the A and B registers, it leaves them with their original values.

(1189)

- isim and ALTWT.

When a low priority process causes a high priority process waiting in an ALTWT instruction (part of an occam ALT) to be rescheduled, the simulator incorrectly provides the high priority process with a workspace pointer of MOSTNEG INT (NotProcess.p). This causes the high priority process to incorrectly restart and the program to incorrectly execute.

(1194)

3.7   Examples

- oc examples

The example b6math.occ incorrectly includes a PC DOS path in a #USE statement

```
#USE "m:\tdstools\libs\streamco.lib"
```

It should be changed to read:

```
#USE "streamco.lib"
```

In addition, the following line should be added at the top of b6math.occ:

```
#OPTION "N"
```

(0893)

- mixconf examples

The following makefiles in do not have TABS in them and consequently they will fail for those make utilities which require TABS:

```
mixed1.mak
mixed2.mak
mixed3.mak
```

(0892)

3.8   F editor

- **D7205 (NEC PC version) only**

  The following files incorrectly refer to TDS files.

  ```
  \d7205\f\data\tds3keys.ld
  \d7205\f\data\doskeys.ld
  ```

  They should contain:

  ```
  tds3keys.ld:     L\d7205\f\data\tds3keys.tbl

  doskeys.ld:      L\d7205\f\data\doskeys.tbl
  ```

  respectively.

  (0884)

- If one of the file write operations from an **EXITALL** operation fails (eg. write permission denied) and the first such write has succeeded, **F** will loop forever if you were editing multiple files simultaneously.

  (0888)

- Error in Sun help file **sunfold.hlp**

  The **Page down** key in the **INVERSE MAPPING** section should read:

  ```
  Page down
  Esc Kpad Enter
  ```

3.9   TDS support tools

- **Command line options**

  The following TDS support tools have different command line characteristics to that provided by other toolset tools:

  ```
  iflat
  iflist
  idirect
  ```

  All three tools require that any command line option **must** appear after all other parameters.

  In addition, **iflat** and **iflist** have the following requirements:

`iflat`

The PC hosted version requires the option switchchar to be '/', all other versions require it to be '–'.

`iflist`

All versions accept either '/' or '–' as the switchchar.

(0890)

4 Documentation omissions

- **User manual Part 1, p339**

The documentation for `ieprom` does not include the 'R' option.

The `ieprom` 'R' option causes `ieprom` to print out the absolute address of the code reference point. This address is intended to be used in conjunction with the `icollect` 'P' option (produce memory map).

(1170)

- **User manual Part 1, p339**

The documentation for `ieprom` does not state clearly enough the processor type to choose for all transputer variants.

The following list states the type to use with `ieprom`:

```
   transputer type          ieprom transputer type

        M212          ->          T2
        T212          ->          T2
        T222          ->          T2
        T225          ->          T2
        T400          ->          T4
        T414          ->          T4
        T425          ->          T4
        T800          ->          T8
        T801          ->          T8
        T805          ->          T8
```

(1173)

- **User manual Part 2, Appendix A, p157**

All the names used for the occam configuration language have been missed off the list of predefined names in Appendix A of the manual.

The **ASM** pseudo instructions are also missing.

The description at the beginning of the Appendix groups names into various classes. The missing names of course do not fit the existing classes, therefore the following class names have been defined:

1 *Configurer keyword*. Keyword defined by the current configurer implementation.

2 *Configurer predefine*. A name which is predeclared by the configurer.

3 *Configurer attribute*. Configuration attribute defined in the current configurer implementation.

4 *Assembler directives*. A name which is specially recognised by the compiler inside an **ASM** construct.

The missing names are as follows:

Name	Class	Library	Notes
ARC	configurer keyword		
CONFIG	configurer keyword		
CONNECT	configurer keyword		
DO	configurer keyword		
EDGE	configurer keyword		
MAP	configurer keyword		
MAPPING	configurer keyword		
NETWORK	configurer keyword		
NODE	configurer keyword		
ON	configurer keyword		
ONTO	configurer keyword		
SET	configurer keyword		
TO	configurer keyword		
WITH	configurer keyword		
link	configurer attribute		
memsize	configurer attribute		
order.code	configurer attribute		
order.vs	configurer attribute		
root	configurer attribute		
rootsize	configurer attribute		
type	configurer attribute		
HOST	configurer predefine		
ADDRESSOF	assembler directive		
BYTE	assembler directive		
LD	assembler directive		
LDAB	assembler directive		
LDABC	assembler directive		
LDLABELDIFF	assembler directive		
ST	assembler directive		
STAB	assembler directive		
STABC	assembler directive		
WORD	assembler directive		

(1201)

SOFTWARE PROBLEM REPORT

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Name of Field Application Engineer: Has FAE been informed?

Date of report: Is a reply required?

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(please include name, address
and telephone number)

Product name and number, version number and date (Use special form for TDS):

Identity of software component with problem:

Host hardware and OS version:

Master transputer type and memory size:

Tick one of the following items:

Documentation error or inadequacy ☐

Serious software bug (system crashes) ☐

Other software bug ☐

Suggestion for design change ☐

Description of problem (one problem only)   *continue on separate sheet if necessary*

(If there is something you cannot do that you expected to be able to do please describe this)

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