SCIENCE AND ENGINEERING RESEARCH COUNCIL
RUTHERFORD & APPLETON LABORATORIES

COMPUTING DIVISION

DISTRIBUTED COMPUTING NOTE 474

MEETINGS Notes of a meeting to discuss progress on the Cambridge Ring	issued by Dr D A Duce 28 September 1981

DISTRIBUTION: R W Witty
                 W P Sharpe
                 C P Wadsworth
                 D A Duce

PRESENT: W P Sharpe
                 C P Wadsworth
                 D A Duce

1   INTRODUCTION

The purpose of the meeting was to review progress and plans for Cambridge
Ring hardware and software.

2   HARDWARE

2.1 Logica Hardware

The delay in distribution of the Logica hardware is due to problems with
one chip for which screening procedures were inadequate. All nodes are
being recycled and suspect chips replaced. At the same time the opportunity
is being taken to incorporate one or two design improvements which would
otherwise have to be incorporated when units are returned for maintenance.

The recycled equipment will be returned by Logica in three batches 2 on 1,
14 and 28 October respectively.

2.2 Installation Contract

WPS will check with Karen Rout where this has reached. DAD is anxious to
write to recipients of ring hardware to inform them of actions necessary
(cable installation etc) before cable can be installed, but believes this
should not be done until contract is agreed with Logica.

Cable specifications, power requirements and bus loads should be a schedule
to the Installation Contract. Action WPS

3   SOFTWARE

3.1 BCPL/Z80 Cross Assembler

CPW expects to complete the implementation of Kent's BCPL compiler by
24th September 1981.

Bootstrapping via Kent's binaries is now working successfully. The file hierarchy has been cleaned up and the manual pages and documentation are being amended before release as Kent use Unix version 6 macros. There changes will also facilitate processing of the manual pages by the standard 'man' command.

The Kent software comprises a compiler generating PDP11 code and a compiler and cross-assembler generating Z80 load modules. They share a common first phase (O-code generation).

The documentation includes Kent's Unix Users Manual for BCPL (in machine readable form) but no language manual - Martin Richard's book (with small extensions described in the Users Manual) is the definitive document on the language.

CPW plans to visit Kent when the implementation work has been completed.

The QMC Z80 cross assembler will be implemented on the 11/70 as a backstop measure. This accepts a slightly different assembly language (in some assembler directives and psuedo-operations) compared to Kent's cross-assemble A new version of the software correcting a number of inadequacies is awaited.

3.2   Unix BB/BSP

The Unix BB driver running on RAL access logic hardware is complete and in distribution form.

Byte stream protocol running over BBP is available, but in a very inefficient form (1 process per byte stream). This implementation is available for distribution.

WPS plans to rewrite BSP/BBP as three items of software:

  1. BBP as now
  2. A single BSP process
  3. A multiplexor process talking to new processes, the BSP process and BBP driver (BSM)

BSM and BBP will be kernel resident. BSP will be resident in user space on a small machine.

Most of the design work has been done, but this is not a high priority activity.

3.3   UMC Z80

First priority is to implement BBP in the UMC Z80, with DMA transfer of blocks between the PDP11 and UMC. WPS and CPW will work jointly on this, estimated completion date is 31 October 1981. The Kent terminal concentrator software may help with this - especially the design of the DMA interface handler. This software will be built to the same BBP kernel interface as used by WPS in 3.2 above.

WPS/CPW will liase with Logica who are known to be interested/developing similar software.

In the longer term plans include investigating implementation of BSP in the Z80. WPS will investigate costs of adding extra memory (RAM) on the UMC board.

3.4 Interactive Systems 'C'/Z80 Cross Compiler

Prof Kirstein has reported that Interactive Systems will provide binary licences for the 'C' cross compiler at $1,000 per cpu, providing 10 are purchased in 3 months from 'now'. Thereafter additional licences would cost $1,100.

UCL are prepared to order licences and invoice SERC.

WPS will draft a letter to Prof Kirstein asking him to proceed if 10 'blank' licences can be obtained (ie name and cpu number to be filled in later).

DAD to discuss this with RWW before any action taken.

3.5 UCSD Pascal

Thomas Schutte's Kent software for the Western Digital Pascal Microengine is too slow to run on a P-code interpreter.

WPS has split the software into BB and BSP and has versions running on RAL and Logica PI access Logics. This software now runs with tolerable performance.

WPS will write to all members of the UCSD Pascal SIG (not all of whom receive Mailshot) informing them of the availability of this software.

3.6 TSBSP

This will be a part of the new BSP/BB Unix package planned by WPS.

Future implementations of BBP should support type 3 blocks.

3.7 X25 York

WPS will be handling this at RAL. Keith Ruttle will bring the software to RAL as soon as Telecoms Group provide a test SRCnet connection. WPS is liasing with Cyril Balderson.

3.8 Higher Level Protocols

NIFTP, ITP etc for Unix can probably be taken from the York software and should run on TSBSP over the ring. The formation of firm plans on this one awaits a meeting with Keith Ruttle.

4 STANDARDISATION

DAD to produce proposal for AR Cash/P Wilde to produce repeater level standard.

5   SUMMARY

Tasks/Priorities are:

WPS

1. UMC Z80 BBP Est. completion 31 October 1981
2. Rewrite BBP/BSP for Unix

CPW

1. Complete BCPL compiler Est. completion 25 September 1981
2. Complete documentation for (1) 2 October 1981
3. Work with WPS on UMC Z80 BBP

DAD

1. Repeater level standardisation proposal

6. ADDENDUM 30.9.81

Implementation of the BCPL compiler is now complete. The new version of
the cross assembler from QMC has arrived and been mounted on the 11/70.
Documentation for both is being issued as Unix Users Notes.

The latest tape from QMC also includes further Z80 software - a driver, a
version of ddt for debugging Z80 code, a test program, and more - which
are being looked at by CPW.