

Ms DCS file

SCIENCE AND ENGINEERING RESEARCH COUNCIL
RUTHERFORD APPLETON LABORATORY

COMPUTING DIVISION

D I S T R I B U T E D C O M P U T I N G N O T E 5 1 8

VISITS

Notes on a visit to M Powell
UMIST 17th November 1981

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- DISTRIBUTION:
- R W Witty
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 - F Chambers (Logica Ltd)
 - W P Sharpe (Cambridge Ring work)
 - C Wadsworth (Cambridge Ring work)
 - Miss G P Jones
 - Investigators Hughes and Powell

The purpose of the visit was to monitor progress in the Hughes and Powell project.

On the theoretical side, two more papers on DTL are in the press. DTL was reasonably well received at the Aarhus Workshop, though contained less Greek characters than most of the work presented!

Work on the Cooperative Grant with British Leyland is held up pending the appointment of an RA.

The Cambridge Ring is working well. An MSc Student produced a shared virtual disc system in UCSD Pascal. A ring driver was implanted in the UCSD disc driver, any requests for units other than 4 and 5 are transmitted over the ring. The project looked at various strategies for such a remote file server (ie level at which request is transmitted eg block address) and performance measurements were obtained. Malcolm promised to send a copy of these results. The student's external examiner was Keith Bennett.

There are two active projects using the ring.

The first is to build a distributed Pascal Plus running over a set of machines connected by a ring. A PhD student is engaged in this work. Design work is complete and a pilot implementation is expected to be completed in the next 6 months. The design is flexible enough to permit totally dynamic process allocation, but initially static allocation will be used.

The second project is the province of 4 third year students who are building a distributed system development environment on the ring for use by a small project team (cooperatively). Each user will require all the resources of a single user workstation at some time and may need access to a shared filestore or special hardware.

The system is being built as extensions to UCSD Pascal, mainly to cope with accessing a hierarchical shared filestore and other shared devies. This project is seen as a similar exercise to Solo or UCSD itself.

The MSc student who built the shared filestore has just started a PhD; he will be looking at applicative languages implemented as a set of processors connected by a ring. John Darlington's work is being used as a basis for this, but the project is still in its infancy.

The UMIST group do not use standard protocols at all. Each of their applications has been designed by step-wise refinement, stopping when they hit the Ring! This approach leads to very efficient protocols (Malcolm claims). I asked Malcolm to send copies of papers reporting the experience.

Malcolm and Jane will be asking for the loan of a PERQ from the equipment pool. They want this (a) so that they can implement their Pascal Plus virtual machine in microcode (b) because it should be large enough to compile the Pascal-Plus compiler (LSI-11 isn't). They also have an interest in implementing other virtual machines in microcode, eg the DTL machine. They have been talking to Jim Welsh about his plans for PERQ and Pascal Plus.

They would like to know how feasible it is to make changes to the PERQ microcode. They would like their extra ring hardware as soon as possible.

ACTIONS

1. Send ring hardware.
2. How do you remicrocode a PERQ?