SCIENCE AND ENGINEERING RESEARCH COUNCIL

RUTHERFORD APPLETON LABORATORY
COMPUTING DIVISION

Distributed Computing Note 594

ICL/PERQ/SERC Collaboration Papers

Minutes of Meeting between ICL and SERC 28 March 1982   issued by
                                                           J M Loveluck

                                                        April 13, 1982

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Present: ICL   H S Woodgate
                    P G L Shave
                    R Chamberlain
                    D Pearson
                    B A Byrne
                    C Barfield
                    R G R Ashbrook

         SERC   F R A Hopgood
                    R W Witty
                    R E Thomas
                    L O Ford
                    J M Loveluck

1 Opening Remarks

B A Byrne and C Barfield (ICL) introduced themselves. B A Byrne was to
give a presentation on ICL Pascal and C Barfield would be manager of ICL
Dalkeith. There was to be a phased transfer of ICL PERQ project to
Dalkeith, although work already started at Bracknell would continue.

2 Status of Actions from last meeting

2.1 SERC had already tabled a paper (paper 2) defining their requirements for Unix. The ICL Marketing specification (paper 9) met these requirements.

2.2 The San Francisco benchmarks had not yet arrived. The Rosenthal benchmarks were available.

Action remains

2.3 A meeting had taken place at ICL West Gorton. ICL were likely to implement Unix on DM1, and further contacts with RAL would be made.

2.4 No action.

2.5 ICL will not proceed with HCR Unix.

2.6 Action remains.

2.7 ICL were negotiating with CMU a low-level affiliation status. It had been confirmed that ICL have access to CMU software on the same footing as 3RCC.

2.8 It seems that the ICL field test software will apply only to ICL supported products, but this has not yet been confirmed. ICL agreed to obtain clarification of the situation.

2.9 The collaborative grant proposal for Unix implementation has been sent to SERC head office, and a response is awaited.

2.10 The meeting to discuss RaserOp protection had again been deferred. Meanwhile ICL (ASD) have implemented some protection for RasterOp, which could form a basis for a solution.

The action on SERC to convene such a meeting rests.

2.11 A meeting was arranged for Thursday 1 April to discuss collaboration on Window Manager implementation.

2.12 ICL had provided details of ASD and DSD software programs. (See also 2.16).

2.13 No information had been obtained by ICL concerning 3RCC position on compatibility problems of different Pascal implementations.

Action remains on ICL to obtain the information.

2.14 Some comments on the ICL draft proposal for Window Manager implementation were presented by SERC. See also 2.11.

2.15 ICL reported on negotiations with Brian Ford concerning NAG implementation on the PERQ. An agreement had been reached to implement the NAG library (in FORTRAN) under both POS and Unix.

2.16 A meeting had been held at RAL to discuss the list of software items provided by SERC (Appendix B to the minutes of the meeting of 1 February 1982). A resume of this meeting was tabled (paper 15). ICL are in the process of assessing market requirements, and will report when this is completed.

Action on ICL to report on this assessment.

2.17,2.18 The ICL Computer Vision project had not yet been defined, and would not be funded in the near future.

2.19 The document preparation project had not yet been officially adopted by ICL and only an internal discussion document was available.

Action on ICL to report when a decision had been made on this project.

2.20 See 2.15.

2.21 A presentation on ICL Pascal was made by B A Bryne. It was intended to implement this under ICL PERQ UNIX. The implementation will conform to the ISO standard, with a compiler switch for a number of extensions. SERC reported that a contract with UMIST had been made to implement an ISO standard Pascal for the PERQ, which would have an option for parallel processing facilities. The office automation project requires a Pascal compiler with extensions within 2-3 months. If the RAL Unix were to be supported by ICL, the ICL Pascal compiler would need conversion.

2.22 Covered under 2.16.

2.23 It was thought that the question of printing applications for the PERQ was a matter for ICL to investigate independently.

2.24 ICL were still in the process of identifying suitable projects for collaboration. GKS implementation was a suitable candidate for a Collaborative Grant Proposal.

Action on ICL to prepare a draft RG6 proposal.

2.25 No information had been obtained from Daresbury on CAMAC interface specification.

Action remains on SERC to obtain this information.

2.26 The DEER interface boxes had been delivered to RAL by ICL.

Action on SERC to report to ICL (West Gorton) on results of assessment.

2.27 A detailed specification for the outboard GPIB/Cambridge ring interface will be provided by SERC when the prototype has been properly debugged. The necessity for an inboard interface could only be assessed when the performance of the new I/O board was known. An enhancement in speed of at least one hundred, over the present I/O board, is required for optimal performance over the ring.

2.28 Information on ICL communications protocols had been provided to SERC.

2.29 See 2.28.

2.30 A meeting to discuss X25 implementation had taken place. The ICL plans required the new I/O board. A feasible short term solution was to use the PERQ-PERQ link board and an LSI11 front-end. A further meeting on ICL communications strategy had been held, but it is not yet clear how X25 implementation fits into the strategy.

Action on SERC to define a short term solution, ICL to respond and report on status of communications strategy.

2.31 See 2.24.

2.32 The DAP market study was under way.

Action on ICL to report on results.

2.33 SERC decision on a possible collaborative grant proposal will await results of 2.32.

2.34 Apart from the extended memory (1/2 Mbyte and 1 Mybte now available) there was little information available on 3RCC plans.   3RCC were concentrating on modifications and improvements to the existing machine, but were also working on a colour display, floating point hardware, and an improved tablet.

Action on ICL to report on outcome of meeting with 3RCC 16 April.

2.35 A document giving prices (to come into effect 1 April) for PERQ systems and components was tabled (paper 16).

2.36 There had been an ICL/RAL meeting to discuss the CAFS file server was reported on, and it had been decided to hold a further meeting in July or August.

2.37 See 2.35.

2.38 See 2.36.

2.39 The information on the element of UK produced items in a basic PERQ had been provided by ICL.

2.40 See 2.35. Awaits 16 April meeting.

2.41 At the last ICL SUN meeting a sub-committee had been set up to form a PERQ user group. The committee would meet at RAL 1 May.

3 Unix Implementation: progress reports

3.1 RAL progress on UNIX implementation

Although the project was somewhat behind target, the compiler was now complete and ready for serious tests. The linker was also ready for tests, and 95% of the Unix system calls were complete. The shell had been compiled and loaded. The next stage was to implement the program (Exec) to load a new program. The Fortran 77 compiler modifications had been made and appeared to be generating correct code, apart from the code for characters. Test programs from pass 1 of the compiler had been put through pass 2 and the results hand checked.

It was hoped to have a demonstration program running under Unix by 15 April.

3.2 ICL progress on UNIX implementation

A paper on ICL software progress was tabled (paper 17).

Systems calls were being tested; device drivers for screen, keyboard and floppy disc had been written. The C compiler is being tested by running on the PERQ code generated by the PDP11. The Unix kernel has been compiled and has run on the PERQ.

Further testing, the floating point microcode and other device drivers remained to be done.

The pre-release version was scheduled for July, a demonstration should be possible by the end of April.

A specification of interim Window Managment facilities had been prepared.

4 Any Other Business

4.1 In spite of the phasing out of PERQ activities at Bracknell, a communications link was judged to be desirable, and this would also provide access to ICL Dalkeith.

4.2 The possibility of a joint ICL/SERC/UMIST project on grey scales was raised.

Action on ICL (R J R Ashbrook) to investigate ICL position.

4.3 Output devices to be supported by ICL include a Versatec plotter/printer.

5 Dates of next meetings

26 April	10.00 am	ICL Bracknell
24 May	10.00 am	RAL

Appendix A

Actions Outstanding

A1 ICL

1. To make available to SERC an early version of Unix.

2. To clarify the applicability of ICL field test software to non ICL supported products on PERQ.

3. To obtain information from 3RCC on compatibility problems of different Pascal implementations, and the possibility of standardising.

4. To report on the results of an assessment of market requirements for the software products described in paper 15.

5. To report on the status of the Computer Vision project.

6. To prepare a draft Collaborative Grant Proposal (RG6) for GKS implementation.

7. To report on the status of ICL communications strategy, in particular as it affects X25 implementation.

8. To report on results of the DAP market study.

9. To report on 3RCC plans for future developments after the meeting with 3RCC on 16 April 1982.

10. To report on ICL interest in an ICL/SERC/UMIST collaboration on grey scales.

A2 SERC

1. To prepare a composite set of benchmarks for testing Unix implementation.

2. To make available to ICL an early version of Unix.

3. To convene a meeting on RasterOp protection.

4. To obtain a specification of the CAMAC/PERQ interface from Daresbury Laboratory.

5. To report to ICL (West Gorton) on results obtained using the DEER interface boxes.

6. To provide a specification of the outboard GPIB/Cambridge ring interface, and to assess the need for an inboard unit.

7. To define a short term solution for X25 implementation on PERQ.

Appendix B

Papers tabled at the ICL/PERQ/SERC Collaboration Meeting 28 March 1982

Paper No	Title
15	Notes on meeting held on 4.3.82 at Rutherford Appleton Laboratory (Software items).
16	PERQ system and component prices.
17	Software Progress in ICL (DSDD).

OK,

PRICE LIST AND COMMERCIAL TERMS
EFFECTIVE FROM 1ST APRIL 1982

Hardware

5651/02	PERQ 4K Writable Control Store/512 Kbyte store	£19,950

                includes: 1 mips Processor
                            512 Kbytes RAM memory
                            4K Writable Control Store
                            Graphics display
                            Keyboard
                            Graphics tablet with four-button cursor
                            24 Mbyte Fixed disc unit
                            1 Mbyte Floppy disc drive
                            GPIB interface
                            RS-232-C interface

5651/03	PERQ 4K Writable Control Store/1 Mbyte store	£22,150

as above but includes 1 Mbyte RAM memory
instead of 512 Kbytes

Hardware options

F2359/00	Link board set	£ 3,120
F2359/01	Ethernet + link interface	£ 2,250
F2361/02	512 Kbytes store module	£ 1,900
F2361/03	1 Mbyte store module	£ 4,400
F2362/01	Stylus	£ 95
F2362/02	Four-button cursor	£ 190

Software

E14901/01	PERQ Operating System (Primary)	£ 1,000
L14901/11	" " " (Secondary)	£ 500
E14926/01	PERQ Pascal (Primary) for PQOS	£ 1,200
L14926/11	" " (Secondary) for PQOS	£ 600
E14921/01	PERQ FORTRAN 77 (Primary)	£ 1,200
L14921/11	" " " (Secondary)	£ 600

Note: A Primary licence entitles the user to be issued with the software,
       use it, receive support and hold Secondary licences. A Secondary
       licence only entitles the user to use the software.

Discounts

Discounts are available for multiple purchases of PERQ systems. ICL recognises the different requirements of System Houses, OEMs and Software Houses. Special arrangements are available in each of these siutations to enable such organisations to maximise the business opportunities available to them with the PERQ system. Further detailed information may be obtained from the address below.

Maintenance

Annual maintenance contracts are available for PERQ hardware at the following rates:-

5651/02 and 5651/03	£1560 p.a. per system
F2359/00	£ 202 p.a. per unit
F2359/01	£ 140 p.a. per unit

Commercial terms

1. Outright sale only for hardware; one-time licence charge for software
2. All payments on hardware and software are due on delivery
3. Maintenance contract payments are due quarterly

Issued by ICL, Computer House, 322 Euston Road, London NW1 3BD

1. UNIX

The Portable C Compiler is being tested on the PDP11 and the C assembler and linker are being produced.

The Kernel changes are progressing well and interrupt and system call handling are being tested on the PERQ.

Work has started on the floating point microcode.

We hope to get the C and UNIX validation tests from SERC very soon.

2. Window Management

A specification of Window Management facilities for UNIX is being produced and a subset of these facilities will be considered for inclusion in the first customer release of UNIX.

ICL are still keen to discuss Window Management with SERC and we should like to agree some interim interfaces for use with the two UNIX systems.

P.G.L. Shave
24MAR82