S C I E N C E   R E S E A R C H   C O U N C I L

ATLAS COMPUTER LABORATORY

Disc Paper No. 5

Changes to specification of extracodes

I find that, in spite of the appearance of the earlier disc papers giving details of the proposed changes to the tape extracodes for disc usage, there are now grounds to reconsider the specification of the 1147 extracode, and possibly also of the 1262 extracode. The change to the former has the uncomfortable side effect that programs originating from outside the Laboratory can be prevented from working on the Chilton Atlas.

The specification of these two extracodes has in the past been as follows:-

1147 Call Compiler. If n is even, call compiler n from the supervisor:

If n is odd of the form $64 \times B + 0.4 \times T + 0.1$, call compiler from tape T at block B $(0 \leqslant T \leqslant 127)$.

Enter compiler at ba, unless ba = 0 when standard entry is used.

On entry b91 contains $1024 \times M + 0.1 \times B$, where B is the starting block of the compiler and M is zero if n is odd or is the supervisor compiler number.

1262 Kind of Device. Sets ba to 0   if device n is Ampex tape:

0.4 if device n is unselected IBM tape:

0.5 if device n is selected IBM tape:

J4 if no device n exists.

Now the documented change for the 1147 extracode is that J4 be added to b91 if the compiler called comes from disc rather than tape. That for the 1262 extracode is for ba to be set to 1 if device n is disc. The former of these changes is proving particularly awkward for users of the LONDON COMPILERS tape, and it is quite possible that other programs may be affected as well. The latter extracode has not been implemented in the manner proposed, and instead sets ba to zero for both Ampex tape and disc device n, while B92 is set even for Ampex tape, and odd for disc.

It has been suggested that the 1147 extracode should be altered in a similar way to the 1262 in the hope of reducing the risk that other programs and compilers will be affected. Whatever change is made, the aim must be both that no working programs and compilers should be affected here in the Laboratory, and that programs depending upon the extended versions of these extracodes should work also at Manchester and London, where the extracodes may not be changed.

The suggestion is that another b-register, b119 say, be set with a mark indicating the difference between disc and tape. My own **proposal** is for a specification as above, together with b119 set positive if the compiler comes from tape, or b119 set negative if the compiler comes from disc. An alternative, which I do not support, is for the different mark to indicate whether supervisor is tape or disc based. The choice of b-register is immaterial as long as it is from the extracode set. I would be glad to hear from anyone who has strong feelings on this proposal, or who can think of possible snags to prevent the satisfactory interchange of programs and compilers between the three Atlas installations at Chilton, London, and Manchester.

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P.S.   I have spoken to Stephen Michael of I.C.T. Ltd. this morning about this.   The easiest setting of b119 to provide is,

even if supervisor is on tape

and   odd if supervisor is on disc.

This means that the source device of a private compiler must not be unloaded, if the nature of the device has subsequently to be established.   For users of COMPILER SPECIAL the *KEEP-TAPE directive may be essential in this respect.