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. 4

Usage of the Disc on Atlas

Following the questions raised in Disc Paper No. 3, I attach herewith the current policy on use of tape extracodes to refer to disc areas. The details should be regarded as tentative at present, and subject to alteration should it prove desirable.

The general aim has been to make disc usage as far as possible identical to Ampex tape usage as far as the user is concerned. The supervisor will run either from tape or disc, depending on the setting of handkeys when it is called down; it is hoped that compilers on the supervisor tape can be organised so that they, too, will run whether or not they are used from tape or disc. The disc will not be usable by object programs unless the supervisor and compilers are called from disc.

The precise details of the organisational extracodes are not covered by the contract between I.C.T. and Manchester University and no guarantee is given at present that the details given here will apply on the Manchester Atlas. Further consultation with Manchester may suggest changes, just as may result from discussions with members of the programming group at S.R.C.

Disc Extracodes

1001-1006	Work as for tape.
1010 Mount	At present, digit 23 of S specifies Ampex (0) or IBM (1). We propose digit 22 of S specifies disc (1) with digit 23 = 0.
1011 Mount free	As for 1010; when applied to IBM, identical to 1010; when applied to disc, does not write title but uses word S + 0.4 to specify the number of blocks of common area required.
1012, 1013	Identical to 1010, 1011 respectively.
1014 Write title	Will title Ampex or disc; not applicable to IBM.
1015 Read title	Reads title for both Ampex and disc; not applicable to IBM.
1016 Unload	Unloads Ampex, Disc and IBM.
1017 Unload and Free	Unloads Ampex and writes free to title. Unloads IBM and Disc without title alteration as for 1016.

1020	Release tape	Releases Ampex or disc. Unloads IBM.
1021	Release decks	Innocuous for all devices.
1022	Reallocate	Applies to Ampex or disc. Does not apply to IBM.
1023	How long?	Ampex gives standard value 5000. Disc will give correct value (i.e. length of logical area). Not applicable to IBM.
1024	Where am I	Gives position of Ampex tape and disc. For disc, gives the position relative to the start of the logical disc area.
1030-32	Start	Apply equally to Ampex tape or disc. In both cases, a main store buffer will be used as at present.
1033	Select	Selects logical tape or disc. Selection is not altered by the use of fixed block transfers but is cancelled by a search order (1001) on this tape or start or select on another tape.
1034-35	Start	Apply equally to Ampex tape or disc.
1036	Selected tape	Applies to Ampex tape or disc. We propose no distinction in ba between tape and disc; the difference can be detected if required by use of 1262 Extracode (see on).
1037	Mode of tape	Applies equally to Ampex tape or disc.
1040-1043	Transfers	Apply equally to Ampex tape or disc.
1044	Word search	Applies equally to Ampex tape or disc.
1046-47	Orion transfers	Apply only to Ampex tape.
1140	Read parameters	Since for most purposes no distinction is drawn between Ampex tape and disc, we propose that the logical tape numbers will represent both disc and tape, but not IBM tape.
1141	Define compiler	Applies to Ampex tape or disc. If Ba = 127, see 1143 Extracode for disc protection.
1143	Reserve Supervisor	Applies to the current supervisor either on tape or disc. If n = 0.1, the extracode will either be illegal for disc or will be dependent on the setting of the process switch, set by operator request XACCept Extracode Program. It is probable that the latter alternative will be implemented both for disc and tape.

1147 Call Compiler

We are in agreement with the proposal to set digit 0 of B91 to 1 if compiler called from supervisor area of disc. Call private compiler will be identical, applying to either tape or disc.

1262 Kind of device

This will distinguish between Ampex tape and disc, returning the value 1.0 **for** disc.

General notes:

(1)   If supervisor is running from tape, disc statements in job descriptions will be faulted, and extracodes 1010-1013 will be faulted if specifying disc. Alternatively, these extracodes could be forced to apply to tapes in this case.

(2)   Should it be necessary in early commissioning phases to use the disc with the existing small working store, the variable length extracodes 1040-1043 will not work. We do not visualise this situation arising at SRC.

D. J. HOWARTH

11th January 1967