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DECUS NO.	12-56
TITLE	QANDA+ - MODIFIED QANDA SUBROUTINE
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SOURCE LANGUAGE	LAP6-DIAL

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Abstract

QANDA+ is a modified version of the QANDA subroutine (DEC-12-FISA). The following changes have been made: (i) it no longer needs to be in the same Instruction Field as the calling programme; (ii) both QANDA itself, and the GETKBD subroutine, return control to LAP6-DIAL when Cntrl/D is typed; (iii) the routines for returning to LAP6-DIAL, and for typing a carriage-return/line-feed pair, are both accessible to external programmes; and (iv) the calling sequence has been changed.

Hardware Requirements

PDP-12B

Storage Requirements

The binary of QANDA+ occupies the first 4 pages of any segment. Index registers 1 to 6, 16 and 17 are used without restoration, but this matters only if QANDA+ is to be used in the same Instruction Field as is the calling programme.

Usage

The basic I/O as seen by the operator is the same as for QANDA, except for the use of Cntrl/D to return control to LAP6-DIAL. The conventions for the text strings and answer buffers are also the same as for QANDA, and the user is referred to the documentation of that programme (DEC-12-FISA-D).

► The calling sequence for QANDA+ is:

```
            LDA I
            2000+QAPARM      /Pointer to parameter list
            LIF n
            JMP 20
               . . .         /REFRESH return
               . . .         /DONE return
                :
                :
QAPARM,     2000+QATEXT      /Pointer to text string
            2000+ANSWER      /Pointer to answer buffer
                :
                :
QATEXT,        . . .         /Text string
ANSWER,        . . .         /Answer buffer
```

The JMP 20 initializes the answer buffer, and displays the text once. The display can then be refreshed by the sequence

            LIF n; JMP 20

given with C(ACC) = 0. If Cntrl/D has been typed, control will be returned to

LAP6-DIAL. If line-feed has been typed, QANDA+ will return to .+2 (the DONE return), thus signalling the end of input. Otherwise it will return to .+1 (REFRESH return) with C(ACC) = 0. Thus, the normal calling sequence will be:

```
LDA 1;2000+QAPARM
LIF n
JMP 20
JMP .-2
    .
    .
```

Note that the parameter list, text, and answer buffer must be in the Data Field, unless QANDA+ and the calling programme are in the same Instruction Field.

► The calling sequence for GETKBD is:

```
LIF n
JMP 22
```

It will return to .+1 with C(ACC) = 6-bit code for the character typed on the TTY. If nothing has been typed, C(ACC) = 0. If Cntrl/D has been typed, GETKBD will not return to the calling programme but will start LAP6-DIAL. Note that for typing on the TTY, GETKBD uses the instruction sequence

```
TSF; JMP .-1
TLS
```

It is therefore necessary for the calling programme to initialize the TTY by the instruction sequence

```
KCC;TLS
```

before using QANDA+.

► The calling sequence for typing a carriage-return/line-feed pair on the TTY is

```
LIF n
JMP 24
```

It will return to .+1 after typing a carriage return and a line feed.

► The calling sequence for returning control to LAP6-DIAL is

```
LIF n
JMP 26
```

This loads and restarts LAP6-DIAL.

Restrictions

Except for the ability to have QANDA+ in an Instruction Field different from that of the calling programme, the restrictions are essentially the same as those for QANDA. Note, however, the requirement to initialize the TTY before using QANDA+, GETKBD or the CR-LF subroutine.

Acknowledgement