Apple II
Technical Notes

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Developer Technical Support

Apple IIGS
#6:   QuickDraw II Pattern Data Structure

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Some QuickDraw II calls require a pen pattern as input or return one as output; regardless of the drawing mode (320 mode or 640 mode), a pen pattern takes 32 bytes.

Changed since November 1988: Starting with System Software 5.0, all 32 bytes are significant if bit 15 of the current port's `arcRot` field is set. Changed wording to cover QuickDraw II patterns in general, instead of pen patterns only.

Early QuickDraw II documentation described the pattern data structure as follows:

```
TYPE
      nibble  = 0..15;
      twobit  = 0..3;
      Pattern = RECORD CASE MODE OF
                  mode320:(PACKED ARRAY [0..63] OF nibble);      { 32 bytes }
                  mode640:(PACKED ARRAY [0..63] OF twobit);      { 16 bytes }
                END;
```

This declaration could lead one to believe that 16 bytes are enough when making calls to QuickDraw II in 640 mode. This is not true. A pattern **always** takes 32 bytes; QuickDraw II calls that copy or construct patterns access all 32 bytes. That means it is never safe to pass the address of a 16-byte area as a pattern. Toolbox calls that return data into your buffer overwrite 16 bytes immediately following your buffer. Calls that copy data from your buffer access those extra 16 bytes, possibly including soft switches or reserved space in the memory map.

The difference between modes is that QuickDraw II normally ignores the second 16 bytes if the current port's `locInfo` indicates 640 mode. Starting with System Software 5.0, all 32 bytes of patterns are significant in 640 mode when bit 15 of the current port's `arcRot` field has been set with `SetArcRot`. In this case, patterns are 16 pixels wide and 8 pixels high.

Further Reference

- *Apple IIGS Toolbox Reference*, Volumes 2–3