TO: Operations Committee   June 21, 1971

FROM: Andy Knowles

SUBJECT: Product Announcement Plans (New PDP-11's)

It is proposed that Operations Committee approve announcement of
the new smallest versions of the PDP-11 family.

The Machines

11/03*   3½" X 17" X 19"
                rack or drawer mountable

                A small computer, fully '11 compatible, designed
                for use in small configurations by primarily the
                OEM. Very attractive for dedicated applications
                as size is small.

11/05*   5¼" X 19" X 23"
                rack mountable

                A larger packaged version of 11/03, allowing
                larger memories and increased peripheral interface
                space for the OEM requiring more flexibility.

BOTH MACHINES FULLY UNIBUS AND 11/15 INSTRUCTION SET COMPATIBLE.

* If future market requirements dictate, CPU's and memories may
   be mounted vertically in 10¼" high box allowing use of all 11/20,
   and 11/25 peripherals and memories within the box. A very
   powerful future feature allowing tremendous utilization of the
   space when 10½" is required by memory or I/O interfaces.

	11/03	11/05
CPU (Unibus compatible) (11/15 binary compatible)	Standard	Standard
Serial interface to 4800 baud (TTL level)	Optional	Standard
Power Fail and Restart	Standard	Standard
Single line, multi level interrupts (a la 11/15)	Standard	Standard
NPR line with multi device capability (a la 11/15)	Standard	Standard
Programmer's Console	Standard	Standard
Approx. 3.3 µsec reg. to reg. (add speed) vs. 2.3 for 11/20 $\approx$.850 for 11/25 $\approx$.290 for 11/45	Standard	Standard
Power Supply	16 amps	16 amps
Memory	4K 850 nsec cycle time 8K max. in box 3½" high	4K 850 nsec cycle time 8K 12K 16K – max. in box 5¼" high
Peripheral Interface Support		
General Purpose Prewired Pheripheral Slots for KL11 TTY DR11-A General 16-bit I/O M792 Boot Loader CR11 Card Reader LP11 Line Printer CM11 Mark Sense Reader KW11-P Clock PC11 H.S. Reader/Punch PR11 H.S. Reader	# of slots available _1_	# of slots available _2_ with 12-16K core. # of slots available _5_ with 4-8K core
Communications I/O Mounting Slots (DF11 Terminating Options)	# of slots available _1_	# of slots available _2_
Size	3½" X 17" X 20"	5¼" X 17" X 20"
Mounting	19" rack or small drawer in any position	19" rack

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MARGINS

From Past Experience

The average OEM percentage discount for the existing OEM QDA's on
11's is 13.6%. The average current PDP-11 OEM system is valued
at $19,500 and generally represents

CPU and Memory (10K average memory)	$10,700
Peripherals including basic TTY	8,800
	$19,500

In the Future

The new average OEM percentage discount on the 11/05 and the 11/03
CPU and memory will be about 29% as derived from the current dis-
tribution of machines over signed QDA's and an expected larger
number of machines per QDA. Gross margin of an average 8K core
only machine is shown at the expected average and maximum discount
levels.

11/05 - Recommended price is $4,595 - quantity 1 for features
        noted on page 2, 4K of memory is $2,600 - additional 4K
        is $2,395 - 8K chunks are $4,995, etc.

At a quantity of 20-50 or 29%   At a quantity of 200 or 38%

   List Price for 8K then = $6,990   List Price = $6,990
                           X   .71   X   .62

             NET SALE = $4,962   NET SALE = $4,333

             EST. COST = $1,800   EST. COST = $1,800

$$\frac{NET\ SALE\ -\ COST}{NET\ SALE} = \%\ Gross\ Margin$$

         Gross Margin = 64%   Gross Margin = 58%

11/03 - Recommended price is $4,095. Other conditions same as 11/05.

<u>At a quantity of 20 - 50 or 29%</u>   <u>At a quantity of 200 or 38%</u>

List Price for 8K is $6,490		List Price = $6,490
X .71		X .62
NET SALE = $4,607		NET SALE = $4,023
EST COST = $1,750		EST. COST = $1,750
Gross Margin = 62%		Gross Margin = 56%

11/05   4K gross margin under the same conditions at $4,595 list
is (cost est. $1,500)

       <u>Qty 20 - 50</u>   <u>200+</u>
          54%   47%

11/03   4K gross margin under the same conditions at $4,095 list
is (cost est. $1,450)

       <u>Qty 20 --50</u>   <u>200+</u>
          50%   43%

NOTE: Estimated cost and derivation of gross margin is engineering
data and does not include variances, contingencies, warranties,
etc. Actual gross margins will be less and during prepara-
tion of final pass at Ops Committee we will have better data.

Detail of CPU, box, supply and memory cost are available
as it exists engineeringwise.

No, Pete's guys haven't really had a chance to add their
expertise to the estimates. Neither have Al's.

THE MARKET

THE "IRON" MARKET

Defined by negligible peripherals, services, relatively low per-
formance. Dedicated controller type equipment is required; i.e.,
8-12K core average, powerfail-restart, serial communications
interface, box and power supply. The typical customer may or may
not want a front console. A high cost and discount conscious
marketplace.

THE COMPETITION

Competition is increasing in numbers and intensity. DG is the cur-
rent leader, being the first strong competitor into this market
with 16 bits. Others are following. The iron market currently is
thought to divide as follows:

Current Booking Rate/Yr (Millions of $'s)

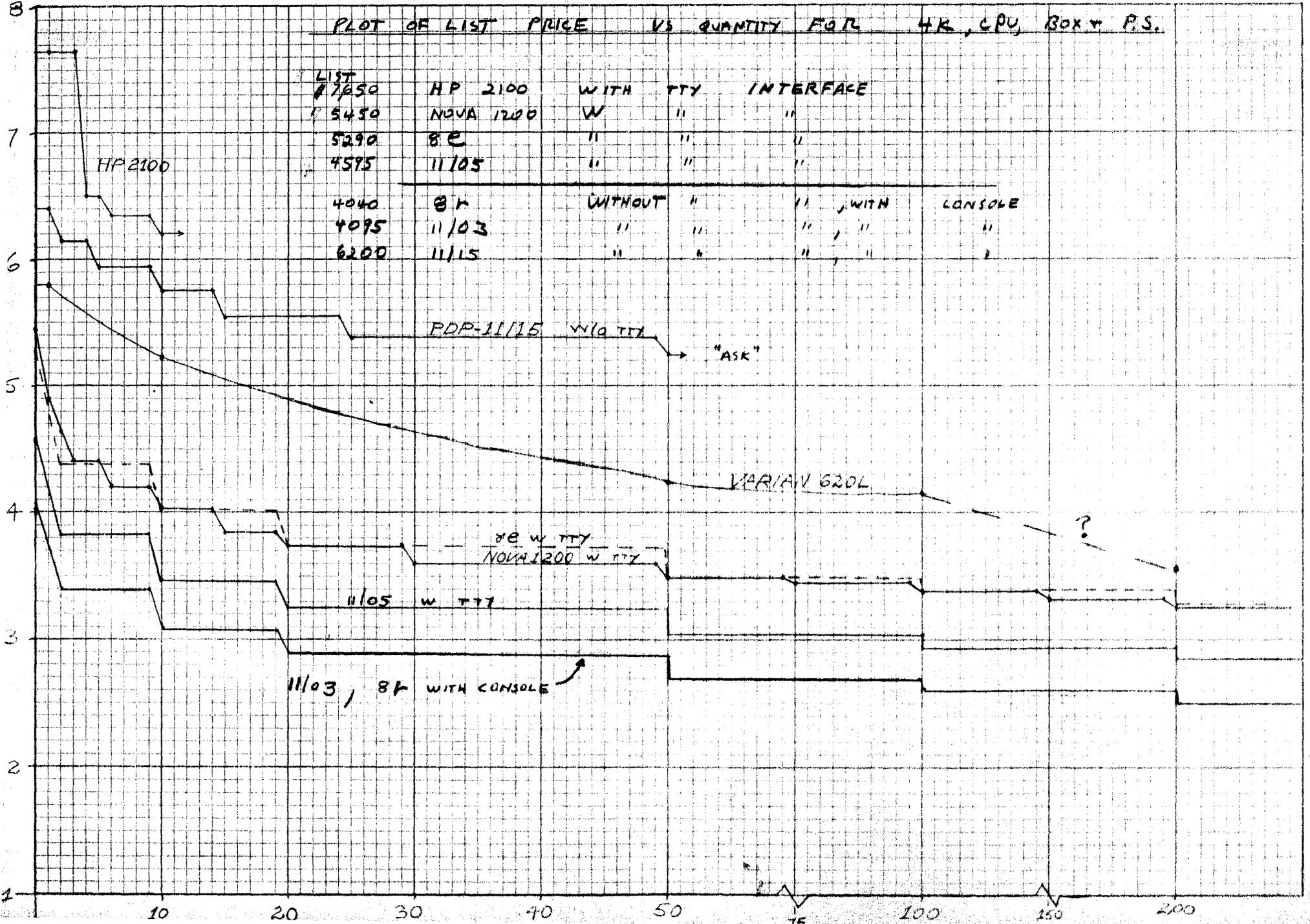|	
PDP-8	10
PDP-11	1
DG 1200	10
HP	1
Honeywell	1
Varian	2
Interdata	2
GA	2
CA	2
Misc.	12

$43 M Total

Competitive machines and pricing are shown on the attached chart
along with new Digital offerings in the market at the suggested
list price and new OEM discount schedule.

PLOT OF LIST PRICE VS QUANTITY FOR 4K, CPU, BOX & P.S.

LIST				
7,650	HP 2100	WITH	TTY	INTERFACE
5450	NOVA 1200	W	"	"
5290	8e	"	"	"
4575	11/05	"	"	"
4040	8h	WITHOUT	"	" , WITH	CONSOLE
4095	11/03	"	"	" , "	"
6200	11/15	"	"	" , "	"

HP 2100

PDP-11/15 W/o TTY → "ASK"

VARIAN 620L

?

8e w TTY
NOVA 1200 w TTY

11/05 w TTY

11/03 , 8h WITH CONSOLE

PDP-11/03, PDP-11/05 PRICE LIST

Type Number	Description	Prerequisites	Price	Mounting Code	Space Requirements	Monthly Maint. (Est.)	Field Installation Rates (Est.)	Discount Status
PDP-11/03A	Computer consisting of: 1. KF11 Central Processor 2. 4K x 16 Read/Write Core Memory 850 ns 3. Basic 3½" Mounting Box and Power Supply 4. Programmers Console 5. Schematics Mounted in a 3½"x17"x20" box. It has space for a total of 8K of core memory, one small peripheral controller, and a serial communications control to 4800 baud.	None	$4095			75	$250	Yes
PDP-11/03B	As above, but includes 8K of core memory	None	$6490			100	$250	
PDP-11/05A	Computer consisting of: 1. KF-11 Central Processor 2. 4K x 16 Read/Write Core Memory 850 ns 3. Basic 5¼" Mounting Box and Power Supply 4. Teletype Control 5. Programmers Console 6. Schematics Mounted in a 5¼" mounting box allowing 12-16K of core memory and two small peripheral controllers or 4-8K core memory and five small peripheral controllers, and a serial communications control to 4800 baud.	None	$4595			75	$250	Yes
PDP-11/05B	Same as 11/05A but includes 8K of core memory	None	$6990			100	$250	
Mounting Options								
Mtg-11	Hardware necessary to mount the PDP-11/05 in a standard 19" rack. Does not include cabinet or slides.	PDP11/05 or PDP11/03	$50				$ 75	Yes
Core Storage								
MM11-K	4K words of 16 bit read/write core memory. 850 ns cycle time.	PDP11/05 A&B	$2600	A	3	25	$150	Yes
MM11-L	8K words of 16 bit read/write core memory. 850 ns cycle time.	PDP11/05 A&B	$4995	A	3	50	$150	Yes

Peripheral Devices

The following list of peripheral devices mount in the available small peripheral controller slots in the PDP-11/05 basic box. These devices may be found in the PDP11/20 price list.

BM792 YA & YB	Bootstrap Loaders
CR11	Card Reader
PC11	High Speed Paper Tape Reader Punch
KL11	Teletype Controller
LP11	Line Printer
DR11A	General Purpose Interface

All other peripheral devices on the PDP11/20 price list require the standard BA11ES PDP-11 Extension Mounting Box and H720 Power Supply for proper mounting and operation. The larger peripheral devices such as the Magtape and Disks are compatible with the UNIBUS which is the common element of the PDP-11 family of computers.

System Software and Services Policy

System Software

1. Assembler
2. Editor
3. Debugger
4. Floating Point Package
5. I/O Executive
6. Binary Dump
7. Octal Dump
8. Programming Manual $100.00

Diagnostic Software (Listings & Tapes)	$100.00
Maintenance Manual	$100.00
Training — Two weeks of hardware and one or two weeks of software training	$900.00

On-Site   -   The warranty for any or all elements of the system is the sum
Warranty   of the published monthly maintenance prices for those elements.

Installation -   Each element of the system is installed according to the pub-
                  lished price.

TERMS AND CONDITIONS OF SALE
(For 8's and 11's, OEM sales only)

A new, aggressive discount schedule is proposed allowing DEC a
highly competitive position in the OEM "iron market". End user
sales are protected by the existing separate end user discount
schedule. The list price for equipment affected by the new OEM
discount schedule allows adequate gross margin. The significant
"system" OEM business currently committed to PDP-11's is pro-
tected by the discount schedule for peripherals and existing
PDP-11's.

NOTE: Discount starts at quantity 2.

DISCOUNT SCHEDULE
(Applies to CPU's & Memories Only)
(8/e, 8/r, 11/03, 11/05)

Qty CPU's	Discount
2-9	17%
10-19	24%
20-49	29%
50-99	34%
100-199	36%
200 +	38%

DISCOUNT SCHEDULE
(Applies to Peripherals & Options Built by DEC
Now & Also Includes 11/15, 11/20's As Exist)

2-9	7%
10-19	13%
20-49	16%
50-99	18%
100-199	20%
200 +	Ask Maynard

TERMS AND CONDITIONS OF SALE continued

1. <u>Documentation and Diagnostics</u>

The OEM buyer receives one set of reproducible diagnostics
solely for use on DEC computers with the first system
ordered. One set of circuit schematics will be provided
with each machine. Additional sets of documentation and
training courses are available at a nominal fee.
Training - No training is included under these terms and
conditions. Training will be available per a price schedule.

2. <u>Warranty</u>

The equipment is warranteed under these OEM terms and con-
ditions to be free from manufacturing and material defects
for a period of 30 days after delivery. Under this warranty,
equipment purchased from DEC which becomes defective will
be repaired by DEC at a location to be designated by DEC at
the time of purchase, the cost of freight to be borne by the
purchaser, never further in distance, however, than the DEC
plant in Maynard, Massachusetts.

In addition, DEC equipment sold under these terms and con-
ditions is warranteed for a supplementary 30 days after the
OEM's end user's equipment of which DEC's is a component is
delivered. Such delivery must occur within six months of
original delivery and the OEM buyer must notify DEC of date
of shipment of equipment to the end user within five days of
the date of said shipment in order that this warranty be in
effect. Repair terms for the supplementary 30 days will be
the same as for the first 30 days so noted. All systems
modules are warranteed against defects for a period of one
year. Under this warranty, equipment purchased from DEC
which becomes defective will be repaired by DEC at a location
to be designated by DEC at the time of purchase, the cost of
freight to be borne by the purchaser, never further in dis-
tance, however, than the nearest DEC manufacturing plant.

3. <u>Special Conditions</u>

The OEM may market DEC equipment as part of a larger system
or with the addition of proprietary software under its own
trademarks and tradenames. The OEM may remove, at no cost
to DEC, any DEC trademark, tradename or other identification

from any equipment purchased under these terms and condition provided DEC agrees to remove, in writing, without any price reduction and at such additional expense to buyer as is involved to DEC.

Purchase orders for all DEC products to be discounted under these terms and conditions must be received by DEC with sufficient lead time so that normal delivery can be scheduled by DEC during the effective period of these terms and conditions. No delivery will be scheduled until a binding purchase order is received from the OEM at DEC, Maynard, Massachusetts.

Prior to fulfilling the quantity commitment of this agreement, the OEM will receive a discount equal to one half that specified by the appropriate quantity on the contained schedule, or the discount successfully completed last year, whichever is greater. This QDA is to be accompanied by a monthly release schedule to reflect the gross total subscribed. Machines will be released against this schedule unless a change is received at Maynard, Massachusetts, 60 days prior to the first day of the month of release effected. The OEM must release within 40% of the original release schedule. If the OEM fails to do so, he will revert to the next lower discount level.

If the OEM fails to release for delivery during the effective period of these terms and conditions (normally one year), the number of products required under these terms and conditions, the discounts for the equipment shall be recalculated using the actual quantities delivered. Unearned discounts will be billed back with 8% interest (from the due date of each invoice previously issued and the bill back date).

Payment terms are   net 30 days. If payment exceeds 30 days from the date of DEC invoice, an interest charge of 1.5% per month on the unpaid balance will be charged accordingly.

All other current protection will be added to DEC OEM agreements so constructed.

	BASIC PDP-8/e	BASIC PDP-8/r	11/20	11/15	11/03	11/05
PRICE	$4,990	$3,690	10,800	$6,200	$4,095	$4,595
CP	Yes	Yes	Yes	Yes	Yes	Yes
Memory	4K by 12 bit	4K by 12 bit	4K by 16 bit	4K by 16 bit	4K by 16 bit 8K by 16 bit	4K by 16 bit 8K by 16 bit
Console	Programmers	Operators	Programmers	Programmers Controllers (-$200)	Programmers	Programmers
TTY Control	KL8-E	None	Yes	No	No	Yes
Schematics	Yes	Yes	Yes	Yes	Yes	Yes
Diagnostics	Yes	No	Yes	Yes	No	No
Sys. Programs	Yes	No	Yes	No	No	No
Installation	Yes	No	Yes	Yes	No	No
Warranty	90 day on site	30 day return to Depot	90 day on site	30 day on site	Depot 30/30	Depot 30/30
Training	2 credits	None	1 Unit	None	None	None
Prime Market	End User & OEM	OEM Only	End User	OEM	OEM	OEM

FORECAST

FY '72

	Q1	Q2	Q3	Q4
# of units		15	150	300
$ value (net) (≈8K machines 25% discount)		.080M	.52M	1.65M

SCHEDULE

July 9, 1971	Proto Running
Oct. 15, 1971	Release to Production
Nov. 1971	First Deliveries from Factory