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* D I G I T A L *        INTEROFFICE    MEMO
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TO:  Distribution            DATE:  April 15, 1986
                             FROM:  Anker Berg-Sonne
                             DEPT:  Product Marketing
                             DTN:   297-2187
                             LOC:   MRO3-1/8E
                             ENET:  CURIE::ANKER


SUBJECT:  $2M+ Slides


Enclosed are the main (and backup) overheads used for

the "Products in the $2M Plus price band" presentation

given at the March "Commercial Woods" meeting.


If you have any questions or concerns, please don't

hesitate to contact me.


Regards.

# $2M PLUS - A G E N D A

**MARKET DATA**
Anker Berg-Sonne

**IBM OFFERING IN 1990**
Paul Kampas

**DIGITAL OPPORTUNITY SUMMARY**
Anker Berg-Sonne

**TWO VIEWS IN DETAIL**
Science      Mike Peterson
MIS          Per Hjerppe

**BUSINESS ANALYSIS**
Larry Rosenberg

**QUESTIONS, ISSUES, RISKS**
Gary Eichhorn

# $2M PLUS MARKET STUDY

- **Monolithic Systems**

    - No clusters or cluster add-ons
    - ONLY net equipment sales

- **Market size**

    - External/Internal

- **Digital opportunity**

- **IBM scenario**

- **Business analysis**

# PRESENTATION FORMAT

- Conclusions presented first

  - Supportive data to follow

- Detail available in package

# Groups participating in study

↓

Product Marketing (OIS,LDP,MFG,ESG,MIS)

HPSC

Corporate Finance

Corporate Marketing

Product Operations

Management Sciences

Education

Medical

DECwest

GSG

TIG

MSB

# Summary Conclusions
# $2M Plus

- IBM dominance - no surprise

  - can Digital provide alternative

- First pass estimates are, Digital can achieve 6-8% market share by 1995

- Investments required

  - Applications
  - TP
  - Vectors
  - Mass storage
  - Reliability

- Profitability

  - Exclusively $2M+

# Summary Conclusions
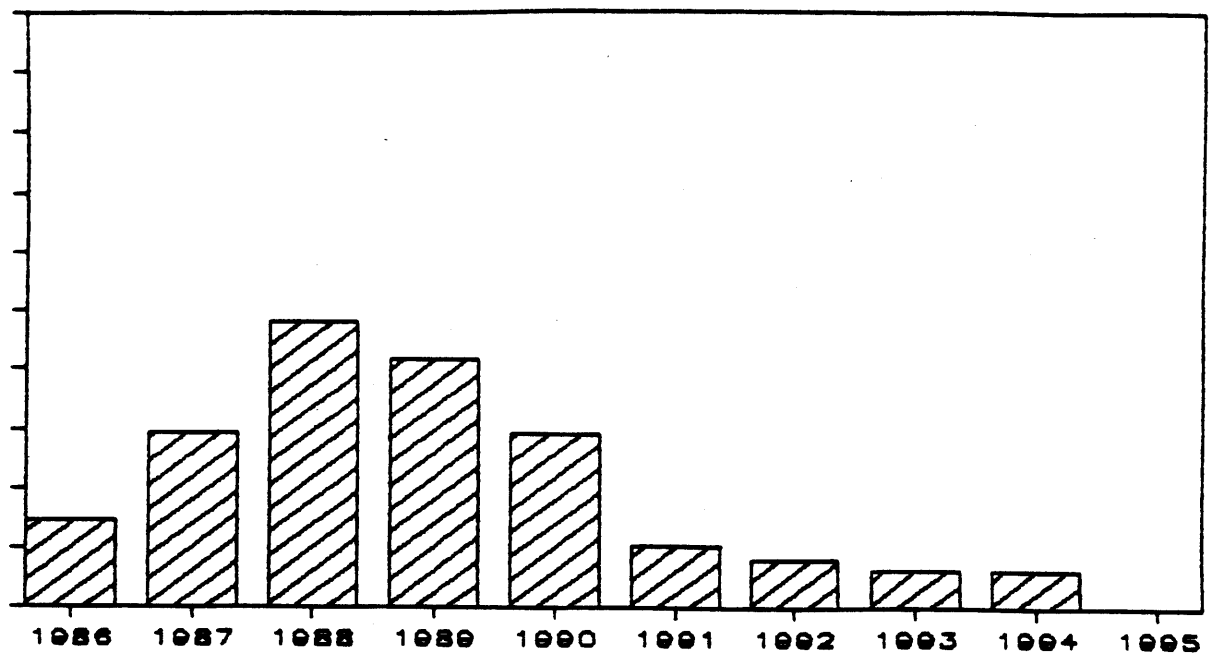
*(continued)*

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- **TO COMPLETE THE STUDY**

  - **Iterate $2M+ numbers**

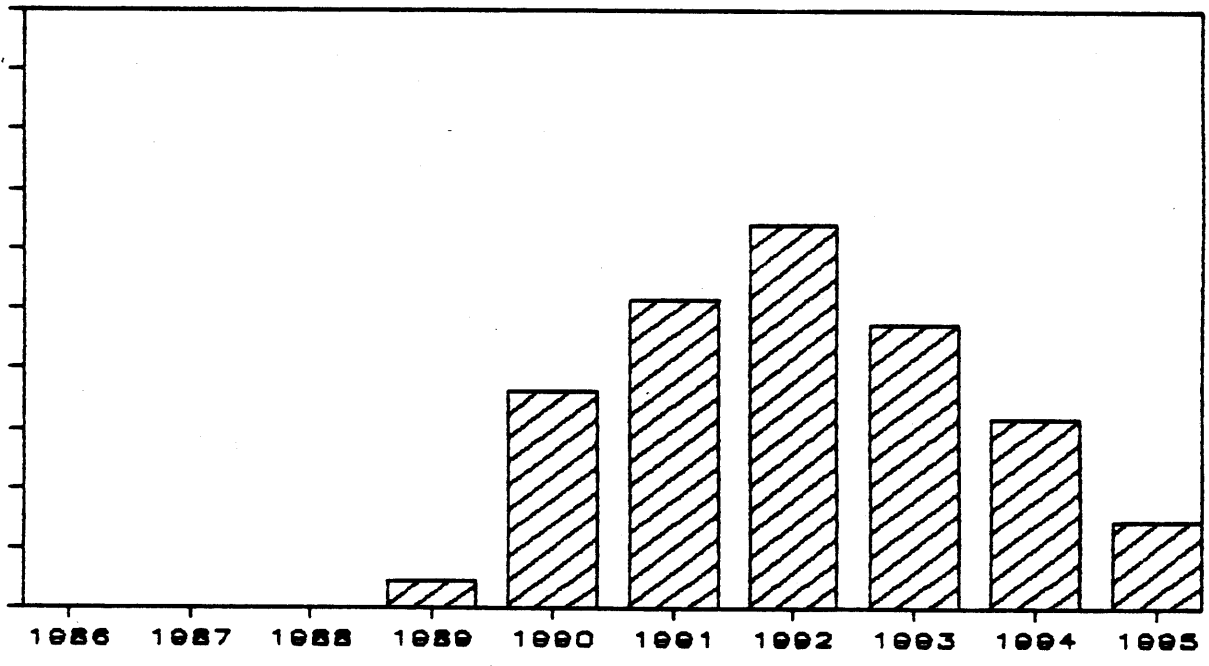  - **$1-2M price band**

  - **Field issues**

# $2M PLUS MARKET

## *HIGHLIGHTS*

---

- Long-term business decision; NOT a product decision

- $1 billion cash investment; recovery 10 years out

- Must take share and real growth from entrenched competition

- Profitability goals might be elusive
  - Competitive reaction
  - Internal risks

- Limited success results in substantial penalties

# $2M PLUS MARKET
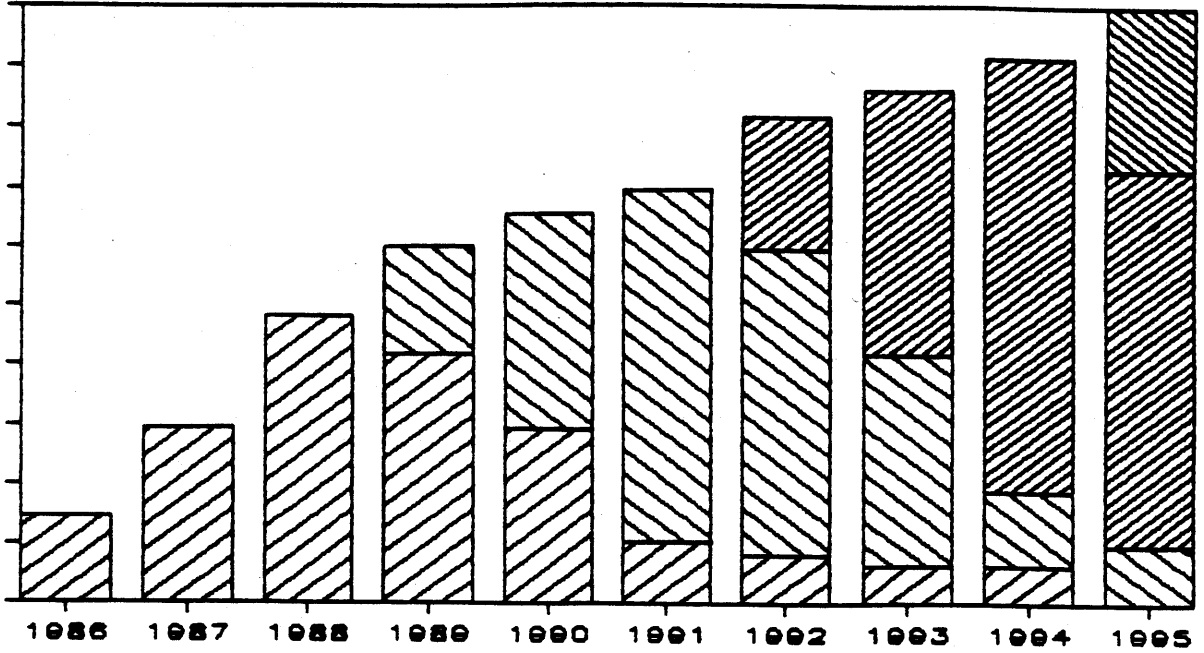## ENGINEERING DISTRIBUTION — PRODUCT



1986 1987 1988 1989 1990 1991 1992 1993 1994 1995

# $2M PLUS MARKET
## REVENUE DISTRIBUTION — PRODUCT



1986 1987 1988 1989 1990 1991 1992 1993 1994 1995

# $2M PLUS MARKET
## ENGINEERING DISTRIBUTION — BUSINESS



| 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |

# $2M PLUS MARKET
## REVENUE DISTRIBUTION — BUSINESS



| 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 |
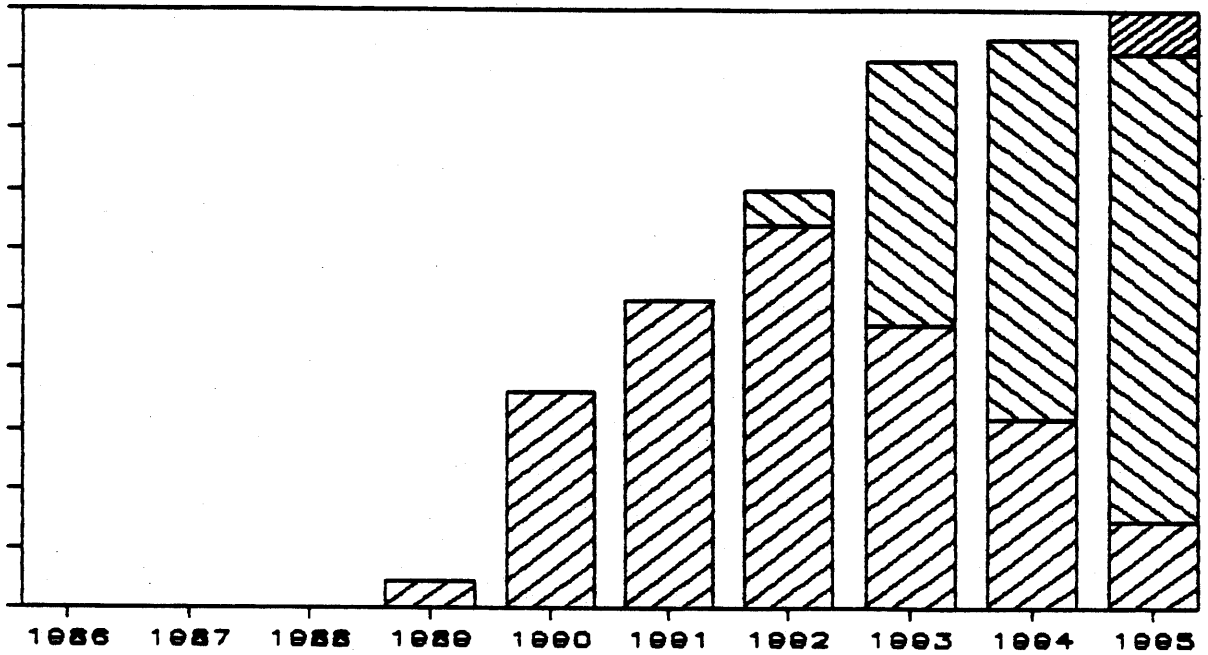
# $2M PLUS MARKET
## MARKET POTENTIAL/OPPORTUNITY



CONSTANT IBM/JAPANESE MARKET SHARE

IBM     JAPANESE     OTH DOMESTIC     DEC
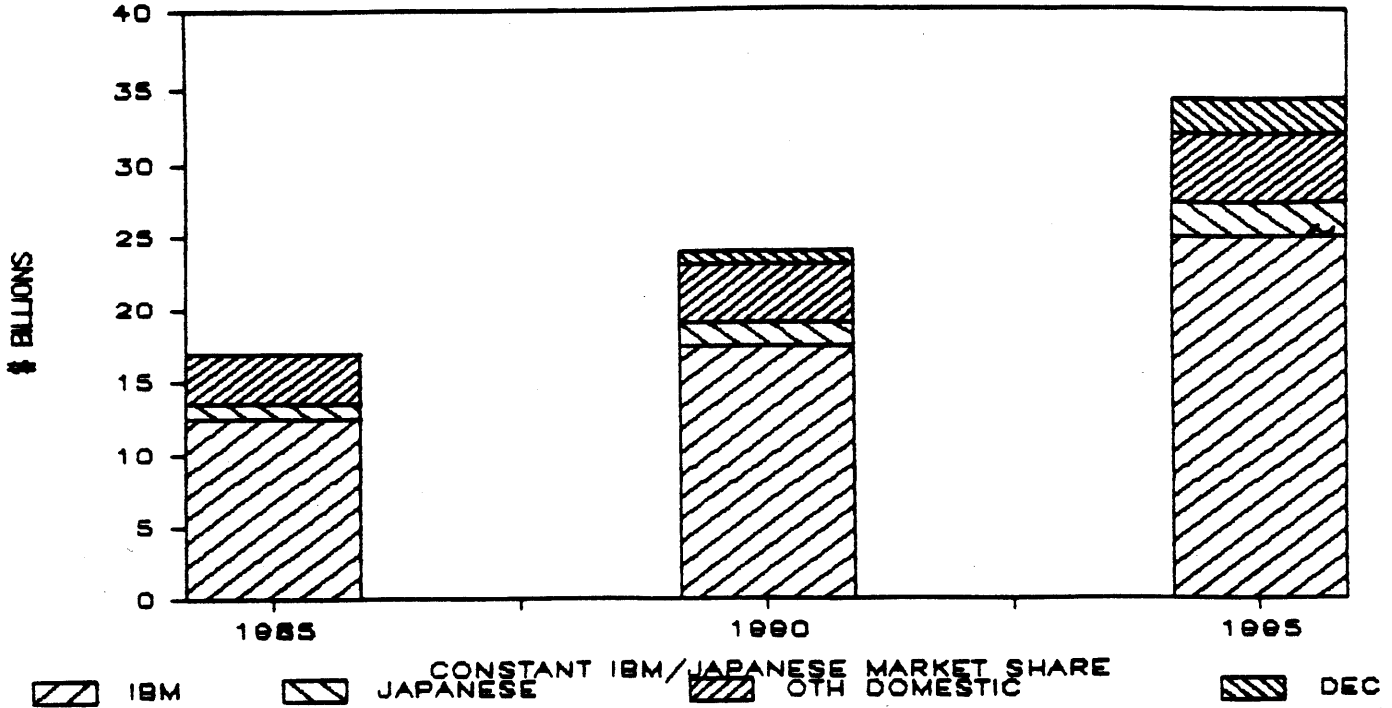
## REVENUE DISTRIBUTION*
### ($ BILLIONS)

| | 1985 | 1990 | 1995 | 1990-95 CAGR |
|---|---|---|---|---|
| DEC | 0.0 | 1.0 | 2.2 | 17% |
| AMDAHL | 1.2 | | | |
| BURROUGHS | 1.6 | 3.8 | 4.6 | 4% |
| OTHER | 0.6 | | | |
| FUJITSU/HITACHI | 1.2 | 1.7 | 2.4 | 7% |
| IBM | 12.4 | 17.5 | 24.8 | 7% |
| TOTAL | 17.0 | 24.0 | 34.0 | 7% |

\* ASSUMES IBM AND FUJITSU/HITACHI MAINTAIN SHARE, AND DEC ACHIEVES PLANNED VOLUMES

# $2M PLUS MARKET
## BUSINESS POTENTIAL/OPPORTUNITY
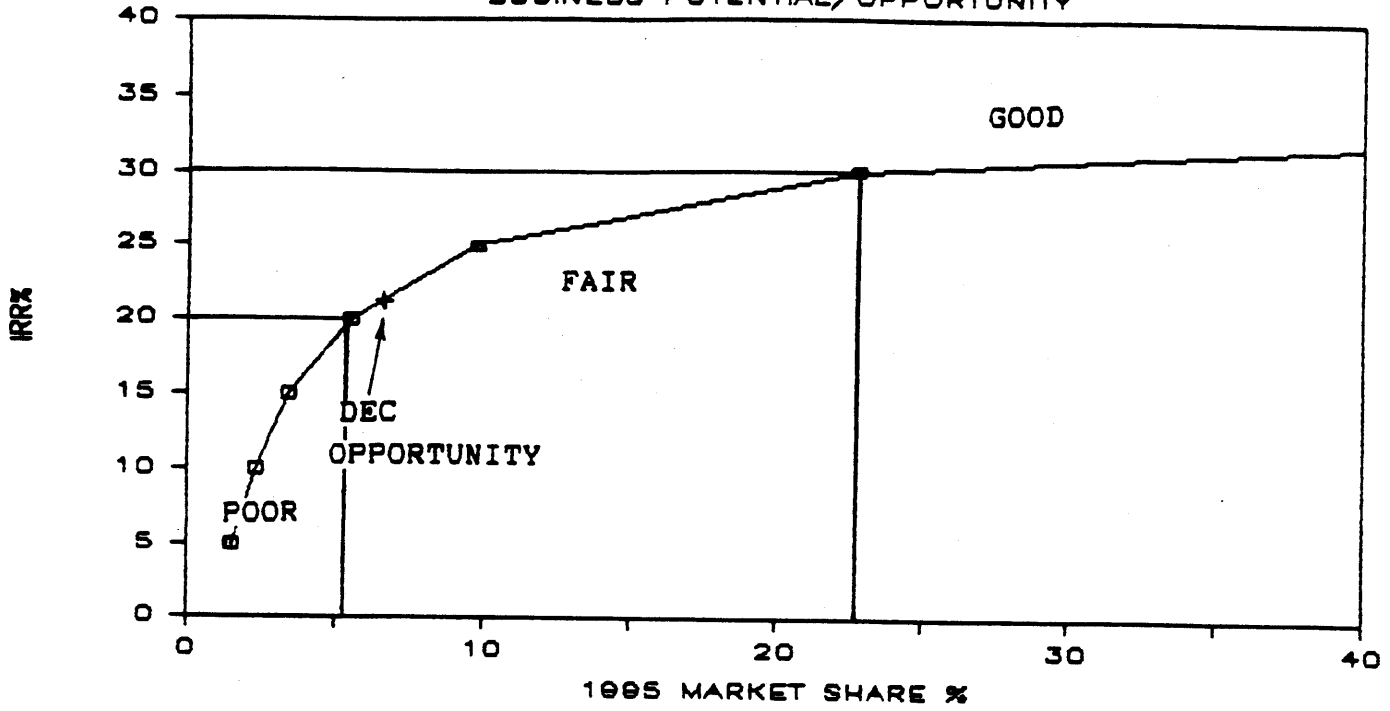


| HARDWARE GROSS MARGIN | 65% |
|---|---|
| TOTAL OPERATING PROFIT | 20% |
| ASSET ASSUMPTIONS  -INVENTORY TURNS | 2.5 TURNS |
|                       -DSO | 74 DAYS |

$2M PLUS MARKET
BUSINESS POTENTIAL/OPPORTUNITY

H/W GM 65%

H/W GM 55%

1995 MARKET SHARE %
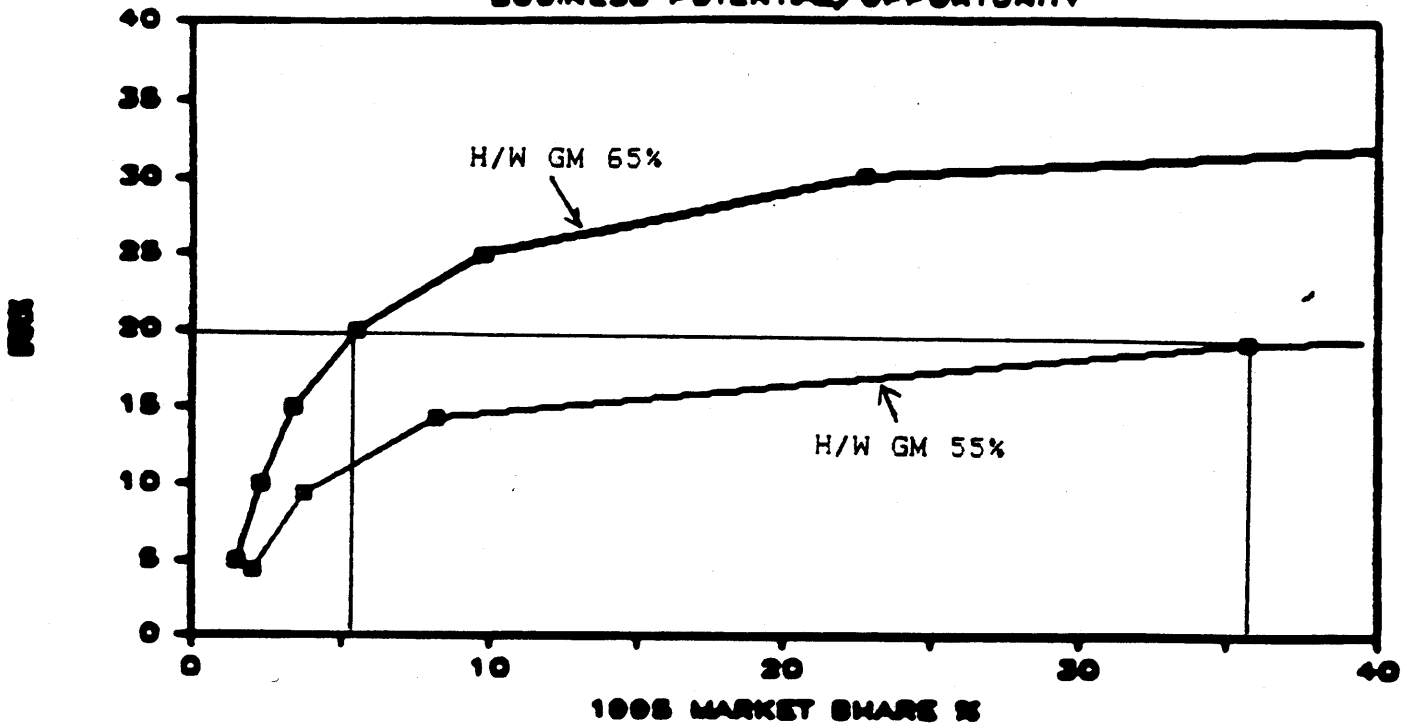
# $2M PLUS MARKET

## OPERATING PERFORMANCE TRENDS

**# Billions** (y-axis)

y-axis values: 5.0, 4.0, 3.0, 2.0, 1.0, 0.0, −1.0

NOR

GM — 60%

OP — 23%

**FISCAL YEARS** (x-axis): 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995
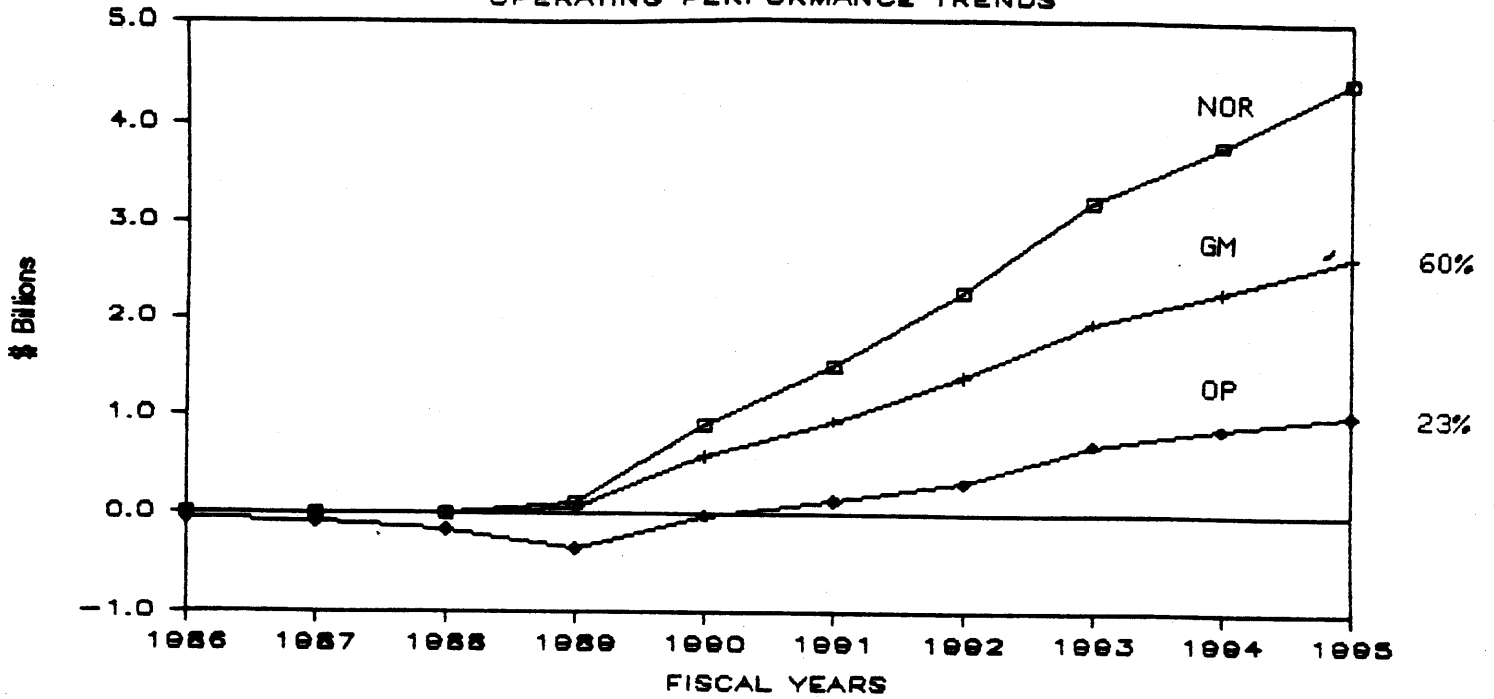
# $2M PLUS MARKET
## BUSINESS CUMULATIVE CASH FLOWS
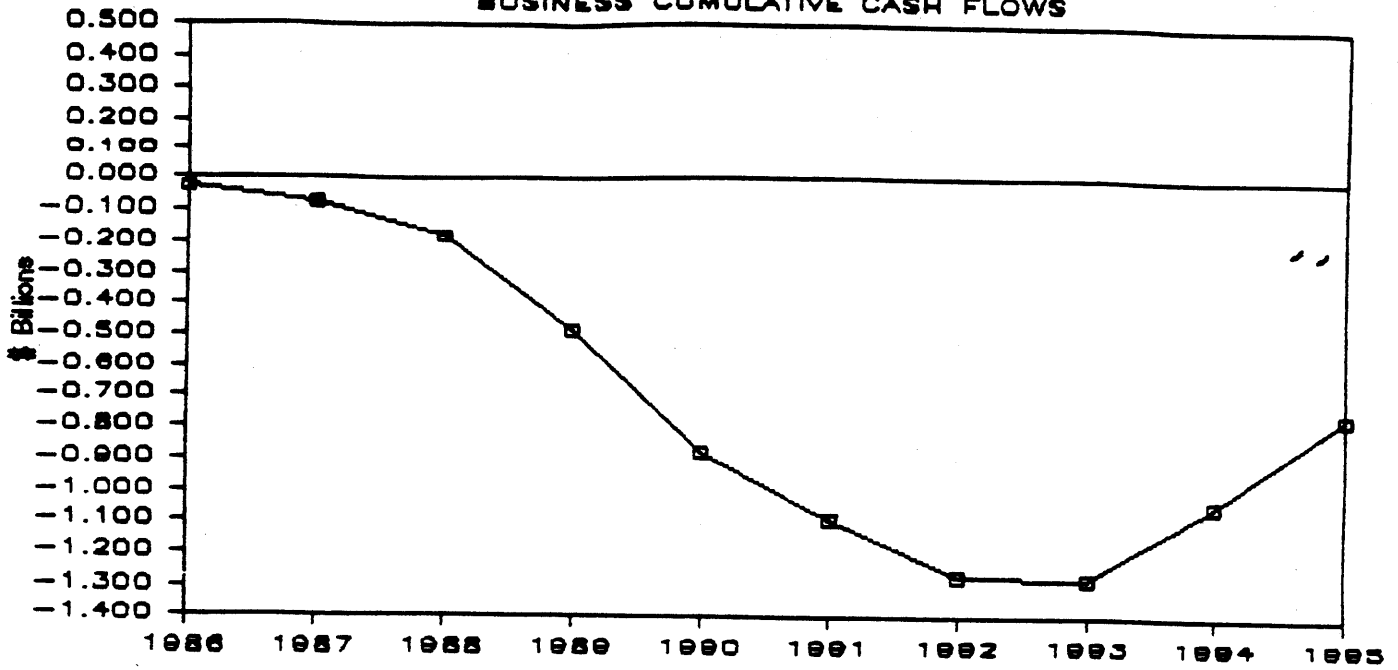
# $2M PLUS MARKET

## COMPETITION

| COMPANY | 1985 SHARE | GROSS MARGIN |
|---|---|---|
| IBM | 73% | 60%* |
| FUJITSU | 4% | ? |
| HITACHI | 3% | ? |
| BURROUGHS | 9% | 40% |
| CDC | 2% | 25% |
| AMDAHL | 7% | 50% |
| OTHER | 2% | ? |
| DEC | 0% | 65% |

*Higher for mainframes

# $2M PLUS MARKET

## *LIMITED SUCCESS CASE ASSUMPTIONS*

---

- Engineering, marketing, and selling grow in anticipation of achieving planned volumes

- At year-end 1990, new forecasts indicate volume likely to be at 50% of original plan

# $2M PLUS MARKET
## LIMITED SUCCESS CASE OPERATING TRENDS



$ Billions

NOR

GM

60%

OP

17%

FISCAL YEARS

# $2M PLUS MARKET

## LIMITED SUCCESS CASE CASH FLOWS



$2M PLUS MARKET — LIMITED SUCCESS CASE CASH FLOWS. Y-axis: $ Billions, from 0.500 down to −1.400. X-axis: years 1986 through 1995.
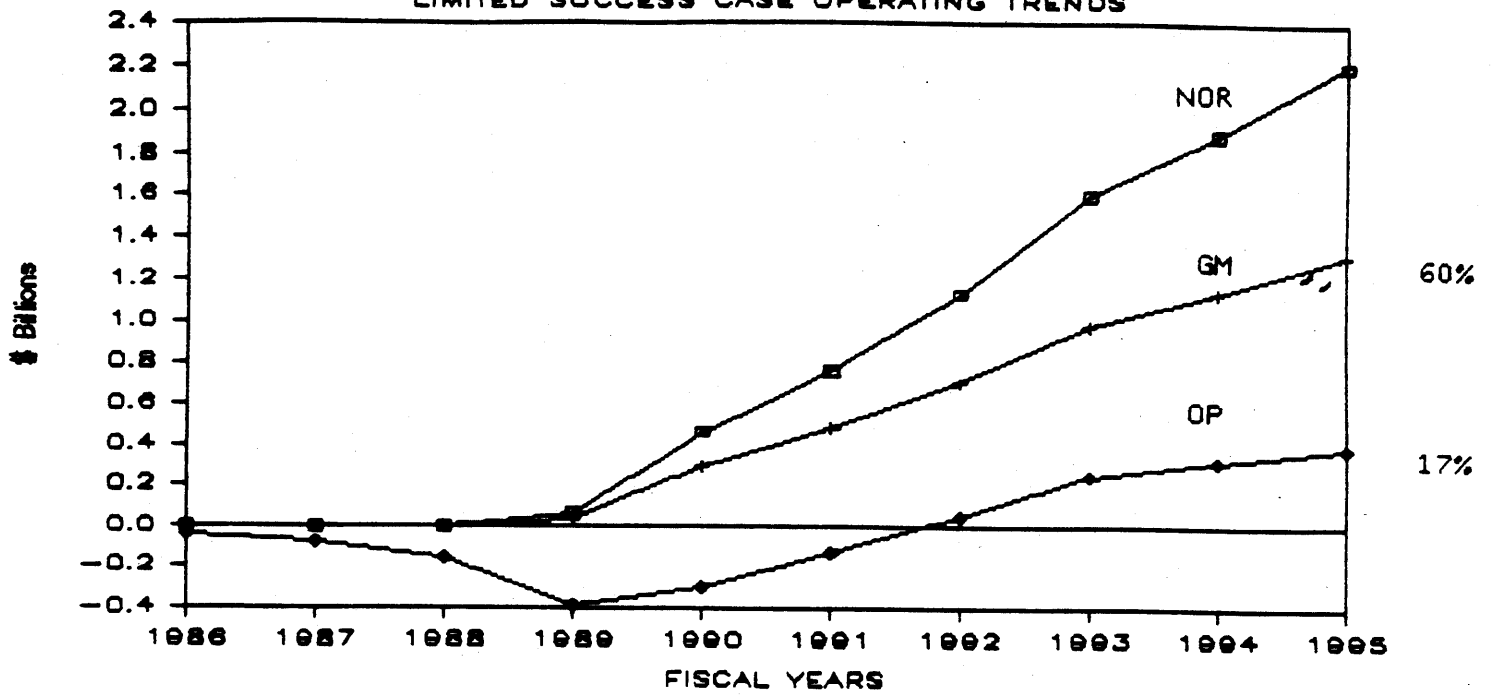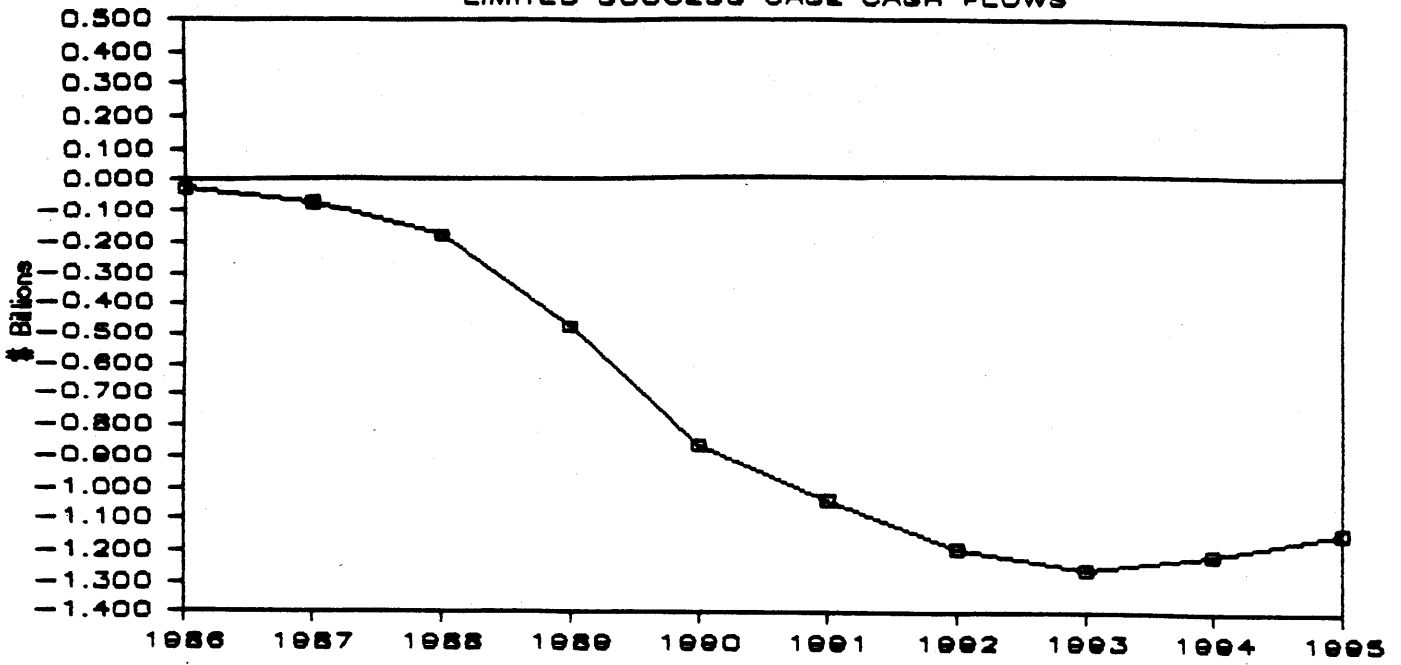
# $2M PLUS MARKET

## ISSUES

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- Gross Margin percentage achievement

- Market share achievement

- Selling/marketing investment to achieve share

- Parallel engineering efforts

- Ability to deliver 'complete' systems

- When and how will IBM react?
  - When DEC achieves X% share
  - Now? (is IBM reducing price to compete with Digital)?

- Technical and MIS markets may have unique requirements

**MARKET FOR
$2M+ SYSTEMS IN
SCIENCE MARKET**

## MAIN MESSAGES

O   OPPORTUNITY IS SMALL FOR $2M+ "IBM-STYLE" SYSTEMS USED FOR
    SCIENTIFIC RESEARCH

    BECAUSE. . .


O   SCIENTIFIC COMPUTING STYLE FAVORS DISTRIBUTED COMPUTING WITH
    ELEGANT ACCESS TO LARGE, COMPUTE RESOURCES (...OR SPECIALIZED ONES)

# STRATEGY

O  **REPRESENTS MARKET FOR COMPLETE SYSTEMS FOR BASIC AND APPLIED RESEARCH**

  o  BIOLOGICAL SCIENCES (INCLUDING MEDICAL AND LIFE SCIENCES)

  o  PHYSICAL SCIENCES (PHYSICS, CHEMISTRY, MATH, ETC)

  o  SOCIAL SCIENCES (ECONOMICS, POPULATION DYNAMICS, ETC.,)

  o  ENGINEERING SCIENCES (ESPECIALLY UNIVERSITY ENG DEPTS)


O  **THE MARKET PULL FOR THIS SPACE IS FOR COMPUTING ENVIRONMENTS THAT...**

  o  PROVIDE DISTRIBUTED, SMALL TO MIDRANGE SYSTEMS

  o  PROVIDE ELEGANT ACCESS TO THE LARGEST POSSIBLE SCIENTIFIC COMPUTER (SUPERCOMPUTER AND/OR DEDICATED APPLICATIONS ENGINES...)

# PURCHASING CRITERIA

1.  PERFORMANCE

2.  FUNCTIONALITY (# APPLICATIONS)

                    1
3.  RELIABILITY

1
 A "GATING" CRITERIA

# BARRIERS TO SUCCESS

o  SCIENTIFIC APPLICATION MIX FAVORS MANY SMALL SYSTEMS (PRICE <$2M),
   WITH READY ACCESS TO THE LARGEST POSSIBLE COMPUTER (CRAY CLASS)

   o  IN THE SCIENTIFIC MARKET WE'RE WINNING TODAY AGAINST IBM FOR
      SCIENTIFIC RESEARCH CENTERS WITH OUR EXISTING PRODUCT AND
      APPLICATION STRATEGIES

         .  CERN
         .  ORNL (REPLACE 2 3033)
         .  SLAC (2 SITES, 1 308X, 1 3090)
         .  FERMI (CDC REPLACEMENT)
         .  LBL (CDC REPLACEMENT)

o  DIGITAL'S REPUTATION (POOR H/W RELIABILITY, DIFFICULT TO DO
   BUSINESS WITH, "MINI" MENTALITY)

o  IBM IS ENTRENCHED

   o  ONLY 10% IS NEW BUSINESS, THE REST IS REPLACEMENT OF WHICH THE
      BUNCH WILL GET ABOUT 15% TO 18%

# INVESTMENT REQUIRED

MARKETING INVESTMENT  MUST BE TO:

1. UNDERSTAND THE CUSTOMER'S BUSINESS (I.E., SCIENCE)

   o  SCIENTIST PROFESSIONALS IN MARKETING

   o  SYSTEMATIC APPLICATION CHARACTERIZATIONS

   o  DEDICATED FIELD APPLICATIONS SUPPORT PROFESSIONALS

2. MOTIVATE PROJECT-ORIENTED SALES TEAMS

   O  RESEARCH PROJECTS ARE OFTEN WORLD-WIDE OPPORTUNITIES

   O  INCENTIVES TO PURSUE LONG TERM BUSINESS OPPORTUNITIES

3. PROMOTE THE DEC STYLE FOR SCIENTIFIC COMPUTING

   o  MANY SMALLER MACHINES SERVED BY ONE OR MORE REALLY BIG ONES
      (...OR SPECIALIZED ONES)

   o  WE'RE WINNING TODAY - DON'T FIX IT, IF IT AIN'T BROKE

4. OTHER INVESTMENTS REQUIRED:

   o  S/W TECHNOLOGY

   o  MASS STORAGE

      .  RELIABILITY
      .  BALANCED I/O
      .  CAPACITY

# SYSTEM REQUIREMENTS

O  APPLICATION THROUGHPUT (SEE ATTACHED DESCRIPTIONS FOR DETAILS)

   o  STRUCTURAL ANALYSIS (SIMULATION/MODELING)

   o  COMPUTATIONAL CHEMISTRY (SIMULATION/MODELING)

   o  SIGNAL PROCESSING (DATA ACQUISITION AND ANALYSIS)

   o  EVENT RECONSTRUCTION (DATA ACQUISITION AND ANALYSIS)

O  SYSTEM METRICS (AS DETERMINED BY ABOVE)

   o  BY 1990, A $2M+ SCIENTIFIC SYSTEM WILL PROVIDE THE APPLICATION
      THROUGHPUT OF A CRAY XMP/48 TODAY, BUT WITH THE INTERACTIVE
      ELEGANCE OF A VAX

   o  DECNETABLE

   o  VMS FORTRAN COMPATIBLE (SOURCE CODE, INCLUDING SYSTEM SERVICES,
      RTL, ETC)

O  MESSAGE:  MUST BE WELL-BALANCED. . .

   o  CPU SPEED

   o  I/O

   o  MASS STORAGE

# OPPORTUNITY

## UNITS

|  | '90 | '95 | LIFETIME | MARKET SHARE |
|---|---|---|---|---|
| BUSINESS AS USUAL [1] | 8 | 24 | 73 | 5% - 8% |
| LEADERSHIP SYSTEM [2] | 32 | 60 | 230 | 16% - 18% [3] |

[1] EXTEND VAX TECHNOLOGY (PRICE/PERFORMANCE) INTO THE $2M - $5M RANGE (25-30 MIPS/CPU)

[2] VAX OR VAX-COMPATIBLE SYSTEMS OPTIMIZED FOR SCIENTIFIC COMPUTING

[3] AT IBM'S EXPENSE

## SCIENCE MARKET
### (BY APPLICATION TAXONOMY)

|  | '85 | '86 | '90 |
|---|---|---|---|
| TOTAL SIZE | 2200 | 2300 | 4309 |
| CAGR | – | 16.0% | 18.0% |
| MKT SHARE |  |  |  |
| DIGITAL | 27.0% | 28.7% | 36.0% |
| IBM | 40.1% | 39.1% | 34.0% |

## SCIENCE (FY '86)

| | HPSC | DAAC | ILA |
|---|---|---|---|
| | SIMULATION/ MODELING | DATA ANALYSIS/ ACQUISITION | DATA MGT/ REPORTING |
| CAGR | 52% | 18% | 30% |
| TOTAL | $650M | $1075M | $575M |
| DEC | 200M | 300M | 100M |
| IBM | 100M | 550M | 250M |
| OTHER | | | |

1. R&D SPENDING/GNP RATIO WILL CONTINUE TO INCREASE THROUGH 1990

2. DISTRIBUTION OF R&D SPENDING SHIFTING MASSIVELY TOWARD PHYSICAL AND EI.GINEERING SCIENCES – 74% OF TOTAL U.S. OUTLAYS FOR R&D (54% TODAY) – IBM'S WEAKEST MARKET, DEC'S STRONGEST!

3. DECLINE BECAUSE IBM MAINFRAME GROWTH, IN SCIENCE, IS MUCH LESS THAN OVERALL SCIENCE MARKET GROWTH (16% VS. 7%-9%)

4. IBM WILL NOT HAVE A MINISUPER OFFERING BY 1990. MINISUPER MARKET WILL BE $2.9B BY 1990 (DATA QUERT)

# Hypothetical customer RFP

YEAR: 1990

BUDGET: $2,000,000 +

IBM PRODUCTS & PRICES ?

Scenario 1:
Business as usual (70% share)

Scenario 2: *
Some competition (60% share)

Scenario 3:
Serious competition (50% share)


* expected scenario

P KAMPAS
3/26/85

# IBM revenue/profit: 1985

| Category | $B | % |
|---|---|---|
| DP Processors | 12. 135 | 24% |
| Peripherals | 12. 676 | 25% |
| Office/Wkstn | 10. 533 | 21% |
| Software | 4. 165 | 8% |
| Maintenance | 6. 103 | 12% |
| Supplies/U-R | 2. 134 | 5% |
| Federal | 2. 057 | 4% |
| Other | 0. 073 | -- |
| Totals | 50. 056 | 100% |
| PBT | 11. 619 | 23% |

# IBM revenue/profit: 1985-1984

| Category | 1985 ($B) | ← | 1984 ($B) |
|---|---|---|---|
| DP Processors | 12.135 | +2% | 11.919 |
| Peripherals | 12.676 | +9% | 11.652 |
| Office/Wkstn | 10.533 | +6% | 9.955 |
| Software | 4.165 | +30% | 3.197 |
| Maintenance | 6.103 | +16% | 5.266 |
| Supplies/U-R | 2.134 | -5% | 2.235 |
| Federal | 2.057 | +25% | 1.645 |
| Other | 0.073 | | 0.068 |
| Totals | 50.056 | +9% | 45.937 |
| PBT | 11.619 | 0% | 11.623 |

# Summary of predictions

### SCENARIO 1:
- Continuation of two CPU, two family (43xx, 30xx) approach.
- 1990 introduction of 4391 & SUMMIT (9,30 MIPS/CPU).
- Continuation of same price points, spacing, mark-ups.
- PBT = 22%

### SCENARIO 2:
- Same as above plus . . .
- Upward extension of 4391 to $2M with 4x SMP or clusters.
- Moderate SUMMIT repricing and earlier mid-life kickers.
- PBT = 16%

### SCENARIO 3:
- Same as above plus . . .
- 1989 4391/SUMMIT introduct'n.
- More drastic price cuts.
- Rapid move to next generation technology.
- PBT = 10%

# Scenario 1: Business as usual

### SETTING:
IBM market share in 70% range; Japan, BUNCH, DEC sticking to their knitting.

### IBM STRATEGY:
Use moderate technologies; continue two family approach; introduce 4391, SUMMIT in 1990; maintain price points, spacing, mark-ups.

### IBM PROPOSAL:
$2M - nothing
$3M - SUMMIT 150
$4M - SUMMIT 180
$8M - SUMMIT 200
$16M - SUMMIT 400

IBM LARGE SYSTEMS POSITIONING: 1970-1990

# SCENARIO 1: BUSINESS AS USUAL

P. Kampas, HPS
3/23/86

$0.5M    $1M    $2M    $4M    $8M    $16M

200

GOODNESS

4L

100

2L

SUM-400  *

L

SUM-200

1990

L⁻

50

2M  $1.5M    $3M

M

GAP

SUM-180

3090-400

20

M⁻

SUM-150

1986  3090-200  1985

3084-QX

MIPS
(log)

M⁻⁻

3090-180

3081-KX

10

4391-3

4381-2

4381-1 1990

3090-150

1981-4

4381-3

3084-JX

5

1986

3033

*

4381-2

3083-EX

4381-1 1981

3032  1978

66

2

4381-5

3031

158  1973

1

4341

1979

4331    148

0.5

$0.5M    $1M    $2M    $4M    $8M    $16M

REAL AVERAGE SYSTEM VALUE (log)
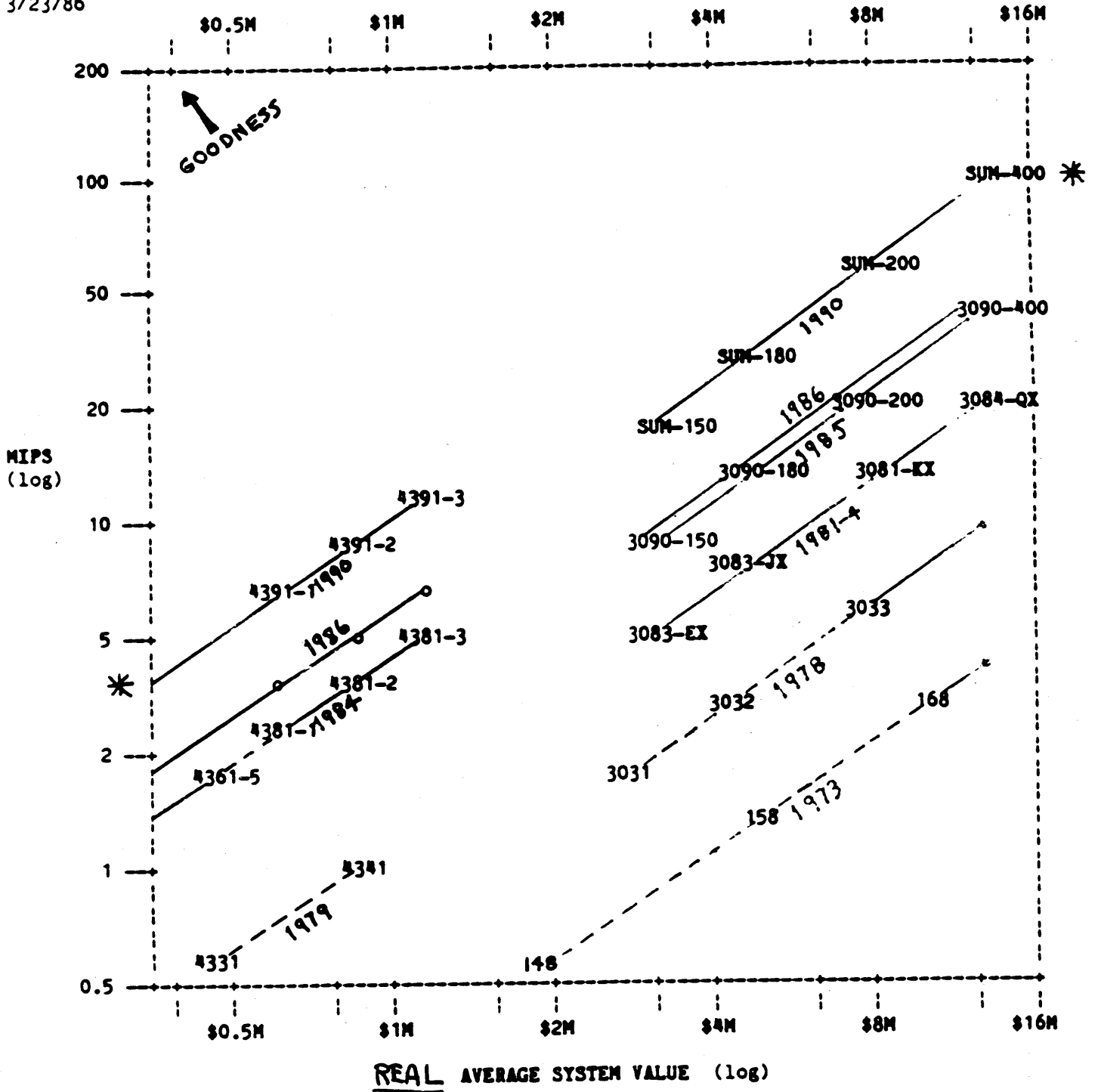
# Scenario 2: Some competition

**SETTING:**
IBM market share falling to 60% range; Japan capturing some high-performance sales, DEC getting some $1-3M sales.

**IBM STRATEGY:**
Extend 4391 to $2M with 4x SMP/cluster; reprice SUMMIT downward moderately and move in mid-life kickers.

**IBM PROPOSAL:**
$2M   - 4391 x 4
$2.5M - SUMMIT 150
$3.5M - SUMMIT 180
$6.5M - SUMMIT 200
$13M   - SUMMIT 400

**SCENARIO 2: SOME COMPETITION**

P. Kampas, HPS
3/23/86

*

$0.5M    $1M    $2M    $4M    $8M    $16M

200

GOODNESS

100 — SUM-400

50 — SUM-200

20-25%
PRICE CUT

20 — SUM-180

SUM-150

MIPS
(log)

4391-3    4x4391
SMP or CLUSTER

10 —

4391-2

4391-1

5 —

2 —

1 —

0.5 —

$0.5M    $1M    $2M    $4M    $8M    $16M

REAL AVERAGE SYSTEM VALUE  (log)

IBM LARGE SYSTEMS POSITIONING: 1970-1990

\* SCENARIO 2: SOME COMPETITION

P. Kampas, HPS
3/23/86
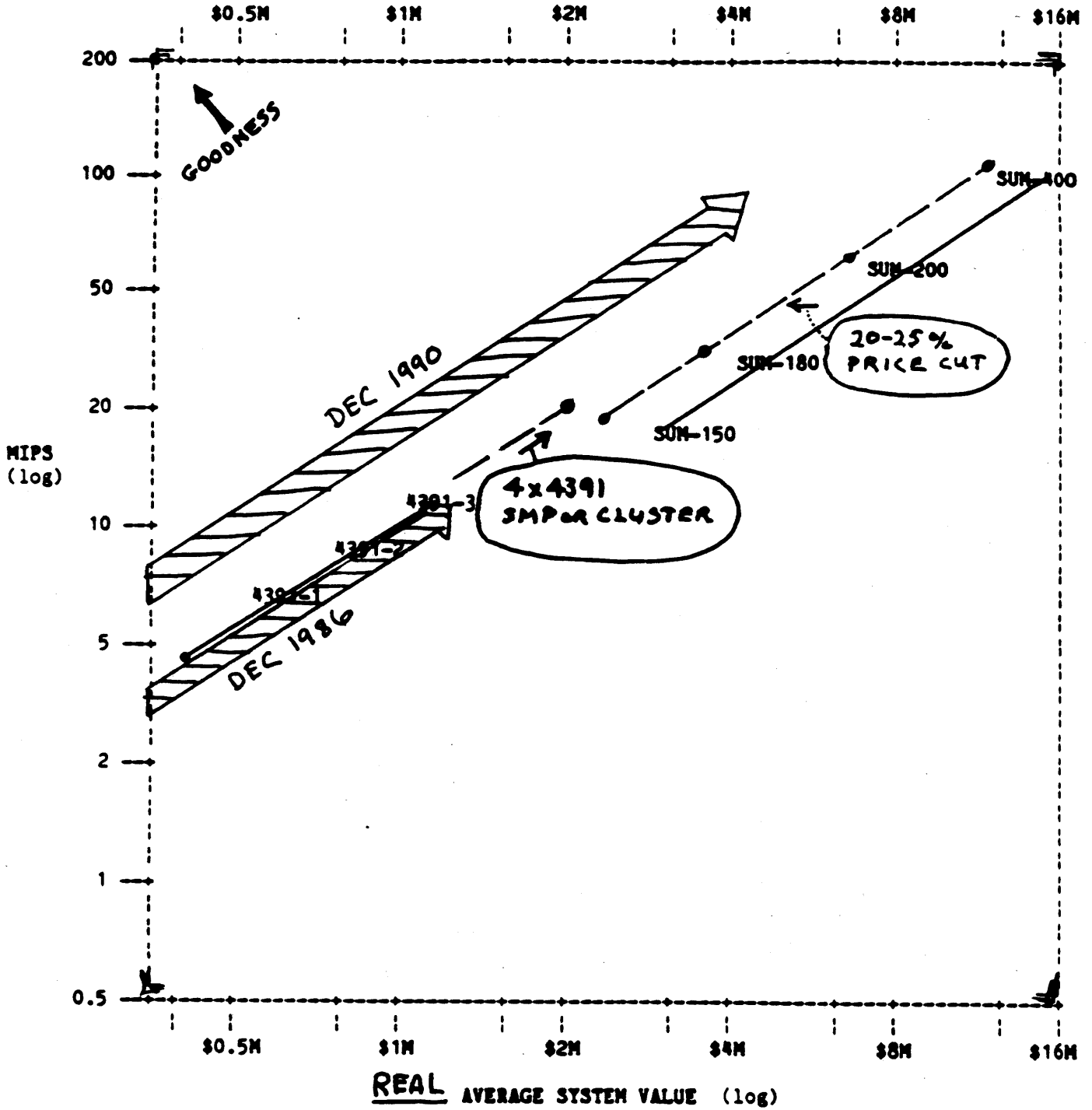
# Scenario 3:
# Serious competition

**SETTING:**
  IBM market share falling
  to 50% range; Japan, DEC
  threatening to crack IBM's
  dominance, price umbrella.

**IBM STRATEGY:**
  Move 4391/SUMMIT intro-
  ductions to 1989;
  dramatically price SUMMIT
  line downward; move in
  mid-life kickers; advance
  rapidly to next generation
  technology to regain margins.

**IBM PROPOSAL:**
  $2M - SUMMIT 150 or 4391 x 4
  $3M - SUMMIT 180;  SUM+ 150
  $4M - SUMMIT 200;  SUM+ 180
  $8M - SUMMIT 400;  SUM+ 200
  $16M -                  SUM+ 400

IBM LARGE SYSTEMS POSITIONING: 1970-1990
SCENARIO 3: SERIOUS COMPETITION
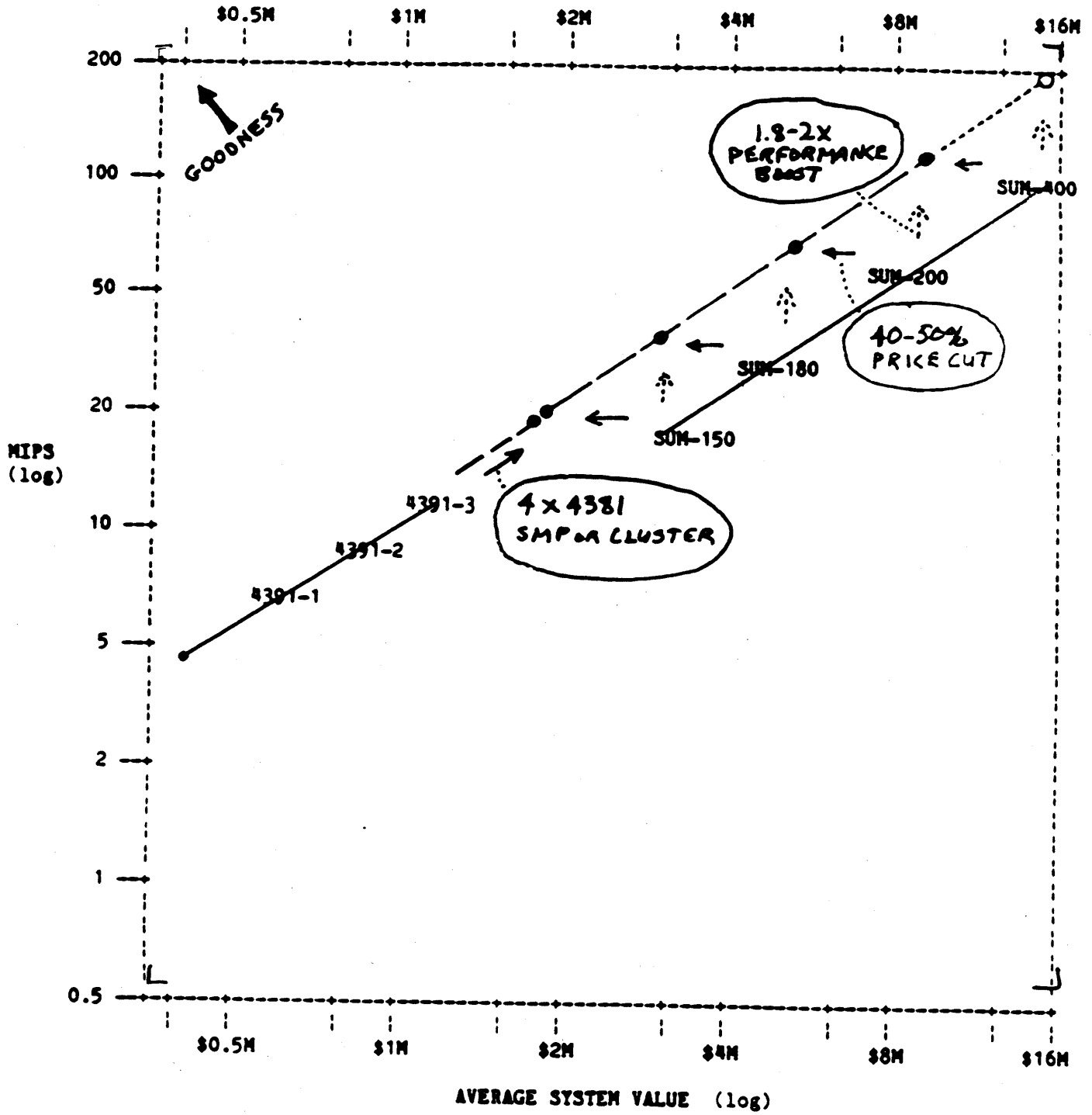
P. Kampas, HPS
3/23/86

IBM LARGE SYSTEMS POSITIONING: 1970-1990

SCENARIO 3: SERIOUS COMPETITION

P. Kampas, HPS
3/23/86
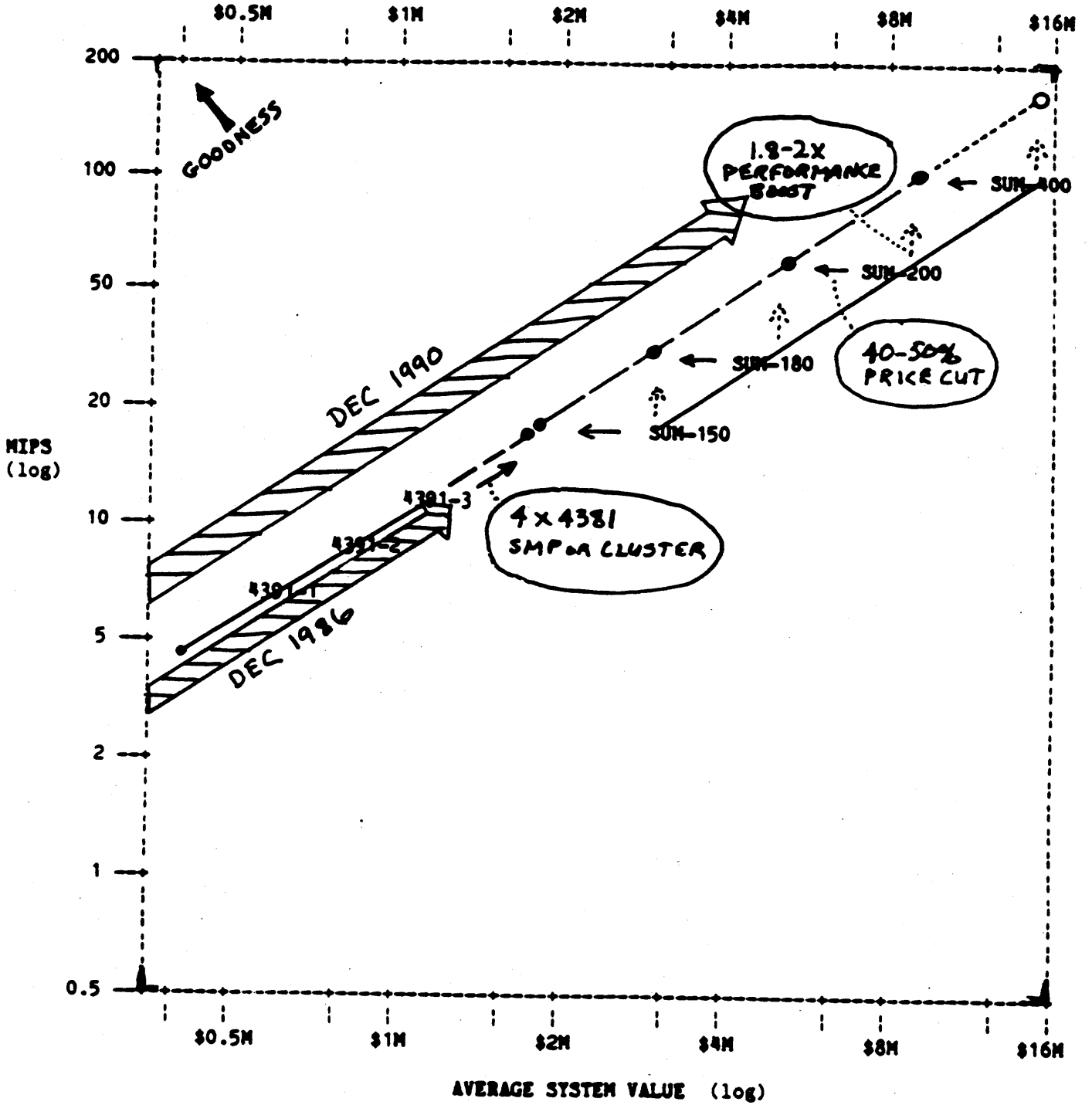
# $2M PLUS PROJECT

## MARKET DATA

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- Large market - $20B in 1990, 24% of total

- Low growth - 7% CAGR

- Technical segment - $4B in 1990, 15% CAGR

- Dominated by IBM and PCMs -
  87% of revenues

- Almost all systems run traditional,
  commercial production applications - 93%

- All $2M+ mainframes are purchased as
  replacements or additions to existing
  mainframe installations

# $2M PLUS PROJECT

**$2M+ Market Relative to Other Markets**

WW Shipments, US Vendors Only (Gartner)
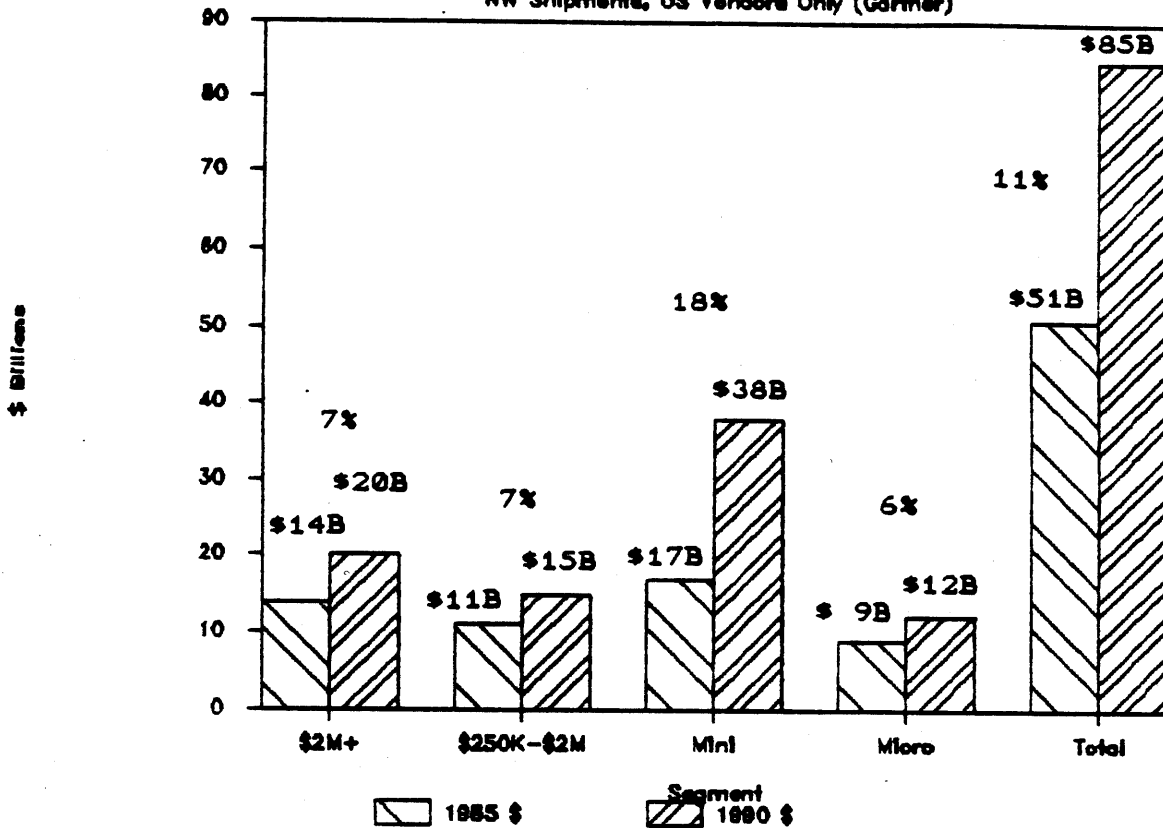
## Mainframe Market Relative to Other Systems Markets

---

(WW Shipments, US Vendors only)
Revenues($B)
Excluding Software and Services

|                       | 1985  | %    | 1990  | %    | CAGR |
|-----------------------|-------|------|-------|------|------|
| Mainframe($2M+)       | $14B  | 27%  | $20B  | 24%  | 7%   |
| Mainframe($250K-$2M)  | $11B  | 22%  | $15B  | 18%  | 7%   |
| Mini                  | $17B  | 33%  | $38B  | 45%  | 18%  |
| Micro                 | $ 9B  | 18%  | $12B  | 14%  | 6%   |
| TOTAL                 | $51B  | 100% | $85B  | 100% | 11%  |

ASV in the $2M+ bracket is $5M

Digital growth from LRPs is 27%

Gartner

Represents only hardware   revenues.    Software  and  services
       excluded.

Software and services represent approximately  the same amount of
       revenue

The mainframe end of the market grows at a much smaller rate than
       the minicomputer end that we are familiar with

The $5M average  system value in the $2M+ bracket indicates  that
       the market spans a very large size range

# $2M PLUS PROJECT

## $2M+ Market by Market Type
### WW Shipments, US Vendors Only (Group)



Bar chart. Y-axis labeled "$ Billions" ranging 0 to 30.

**Commercial** — $12B (1985), $16B (1990), $21B (1995), 6%
**Technical** — $2B (1985), $4B (1990), $8B (1995), 15%
**Total** — $14B (1985), $20B (1990), $29B (1995), 7%

X-axis label: Segment

Legend: 1985 $ | 1990 $ | 1995 $
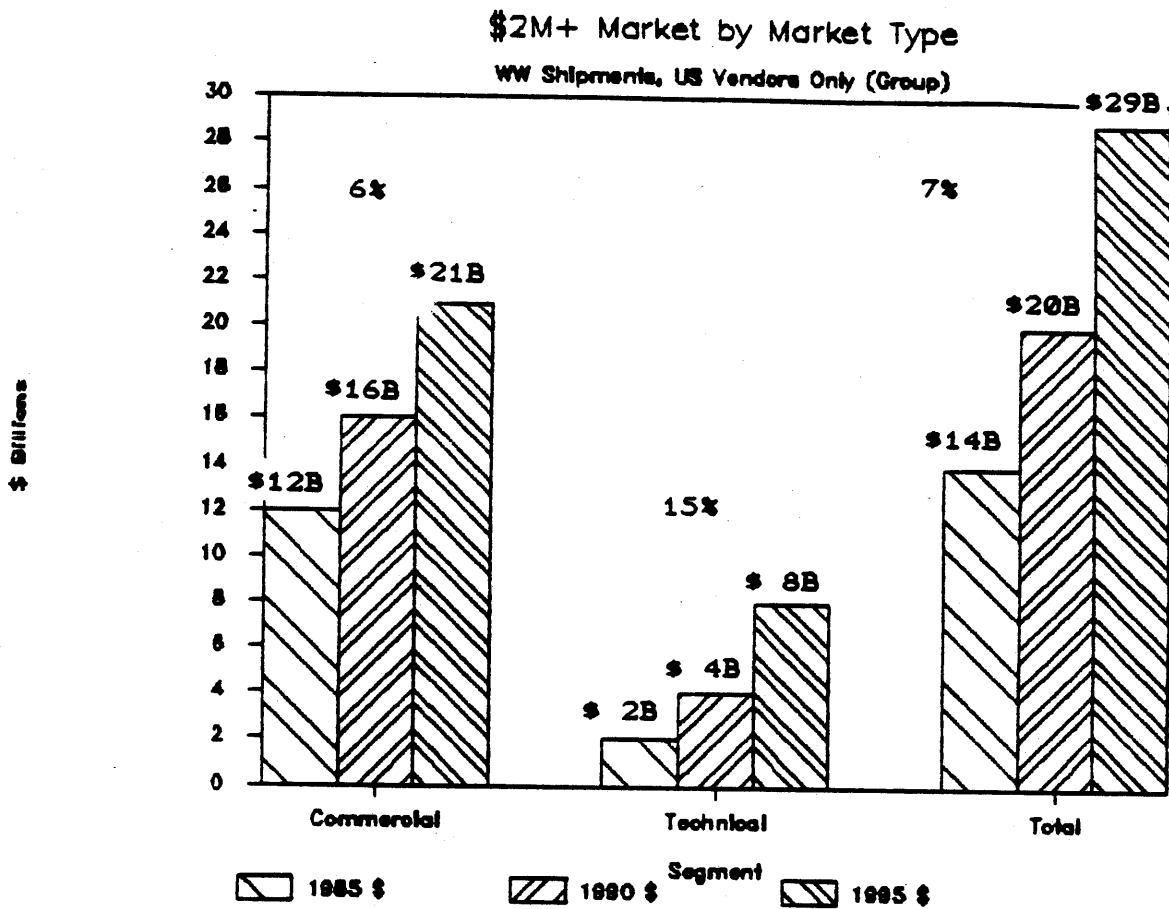
## $2M+ Mainframe Revenue by Market Type
-----------------------------------------
### (WW Shipments, US Vendors only)
#### 1985 Revenues($B)

|            | 1985  | 1990  | 1995  | CAGR |
|------------|-------|-------|-------|------|
| Commercial | $12B  | $16B  | $21B  | 6%   |
| Technical  | $ 2B  | $ 4B  | $ 8B  | 15%  |
| TOTAL      | $14B  | $20B  | $29B  | 7%   |

Team consensus

The is lower than average growth in the commercial segment of the
mainframe market

In spite of much higher than average growth in the technical
segment, it will continue to be much smaller than the
commercial segment for the foreseeable future

# $2M PLUS PROJECT

$2M+ Market by Application

% US Installed Systems 1/1/85 (COMTEC)
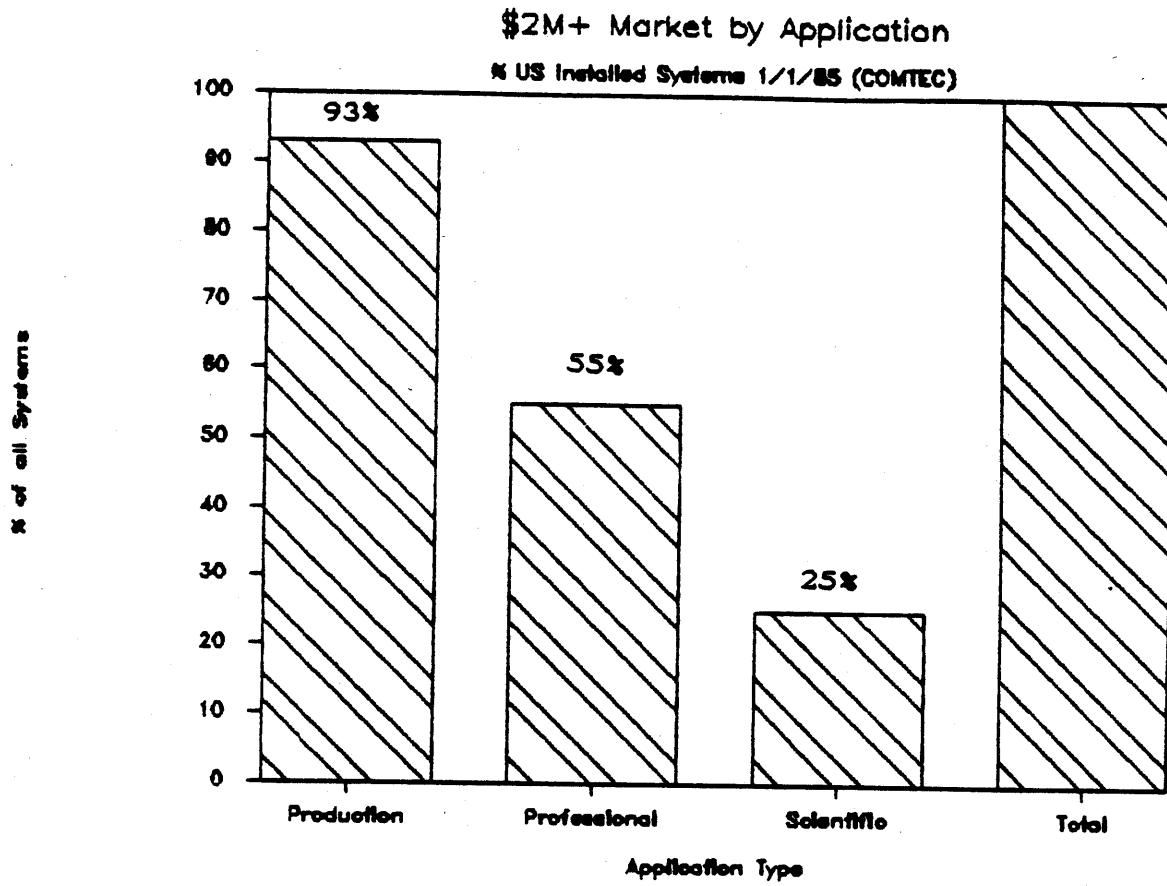
## Segmentation by Application

-------------------------------
### (Large Systems $2M+)
% US Installed Systems as of 1/1/85

|                | Application     | % of all Systems |
|----------------|-----------------|------------------|
| **Production** |                 |                  |
|                | On-line TP      | –                |
|                | Accounting      | 72%              |
|                | Data entry      | –                |
|                | Data Base Mgmt  | –                |
|                | Total           | 93%              |
| **Professional** |               |                  |
|                | Time Share      | –                |
|                | Distrib. Proc.  | –                |
|                | Word Proc.      | –                |
|                | Total           | 55%              |
| **Scientific** |                 |                  |
|                | Total           | 25%              |

Percentages do not add up to 100% because of systems running
multiple applications

COMTEC

Percentages add up to less than 100% because a single system may run applications from several classes

93% of mainframes run traditional mainframe production systems, and 72% run accounting

55% run professional applications, most probably because of "excess capacity"

25% run scientific applications, statistics, modeling, simulation, etc.

# $2M PLUS PROJECT

$2M+ Market by Vendor
WW Shipments, WW Vendors (Infocorp)

2% Cray
2% CDC
3% Hitachi
4% Fujitsu
7% Amdahl
9% Burroughs
NEC 0%
IBM 73%
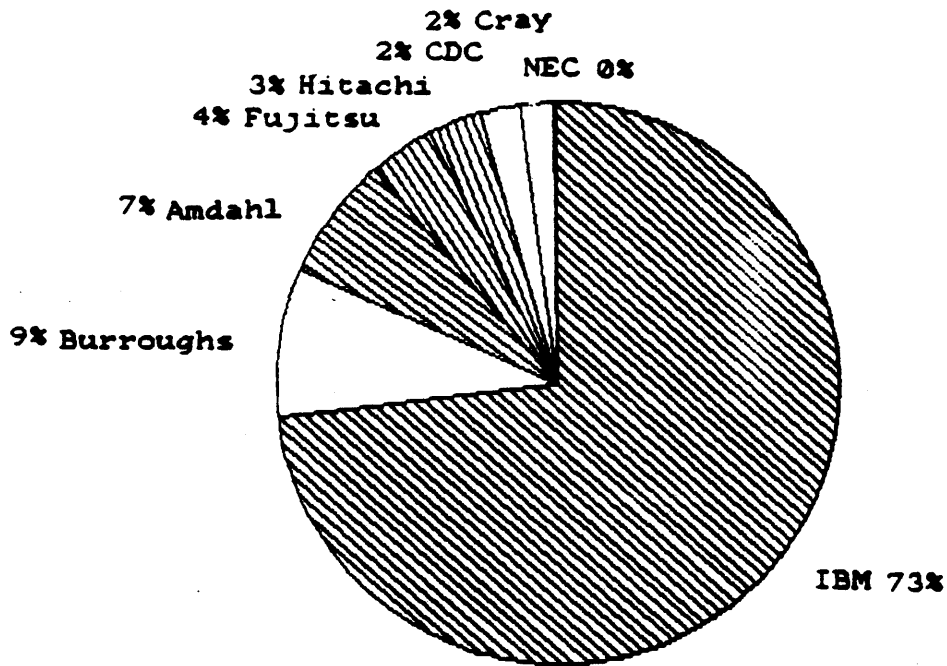
```
              Market Segmentation by Vendor
              ------------------------------
                 (WW Shipments, WW Vendors)
                 1985 Estimate, $2M+ Systems

        Vendor              Revenue            Share
        ------              -------            -----
        IBM                 $10,890M           73%
        Burroughs           $  1,275M           9%
        Amdahl              $  1,051M           7%
        Fujitsu             $    568M           4%
        Hitachi             $    442M           3%
        CDC                 $    345M           2%
        Cray                $    285M           2%
        NEC                 $     28M           0%

        Total               $14,884M          100%

        PCMs                $  2,061           14%

IBM+PCMs = 87% of total


                                   Infocorp Forecast
```
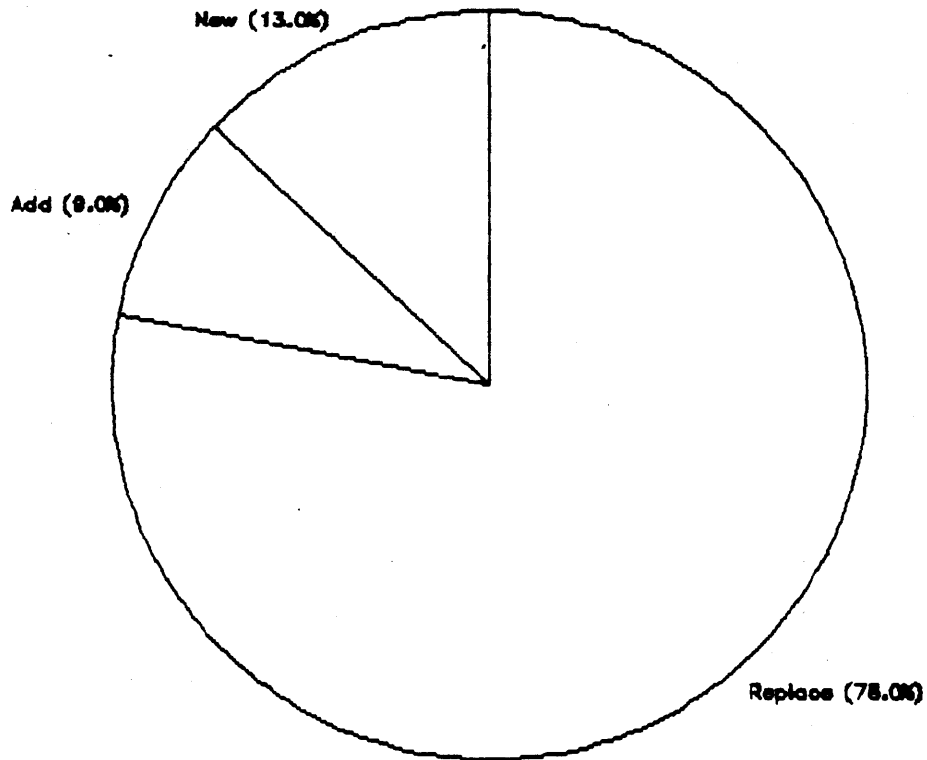
IBM and PCMs account for 87% of the revenues

Burroughs is the only significant non-IBM-compatible vendor

# $2M PLUS PROJECT

Mainframe Purchasing Plans 1985–1986
For $250K+ from US Establishments

New (13.0%)

Add (9.0%)

Replace (78.0%)

# $2M PLUS PROJECT

**Mainframe Purchasing Plans 1985—1986**
For $2M+ from US Establishments

New (0.0%)

Add (13.0%)

Replace (87.0%)

## Mainframe Purchasing Plans 1985—1986
### For $250K+ from US Establishments

New (13.0%)

Add (9.0%)

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## Mainframe Purchasing Plans 1985—1986
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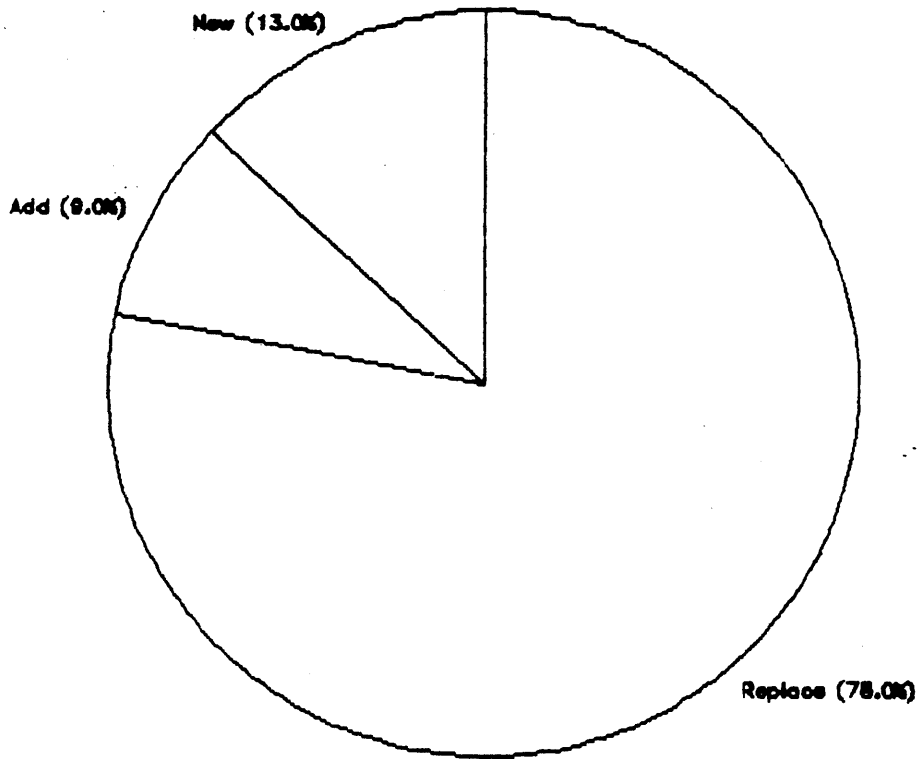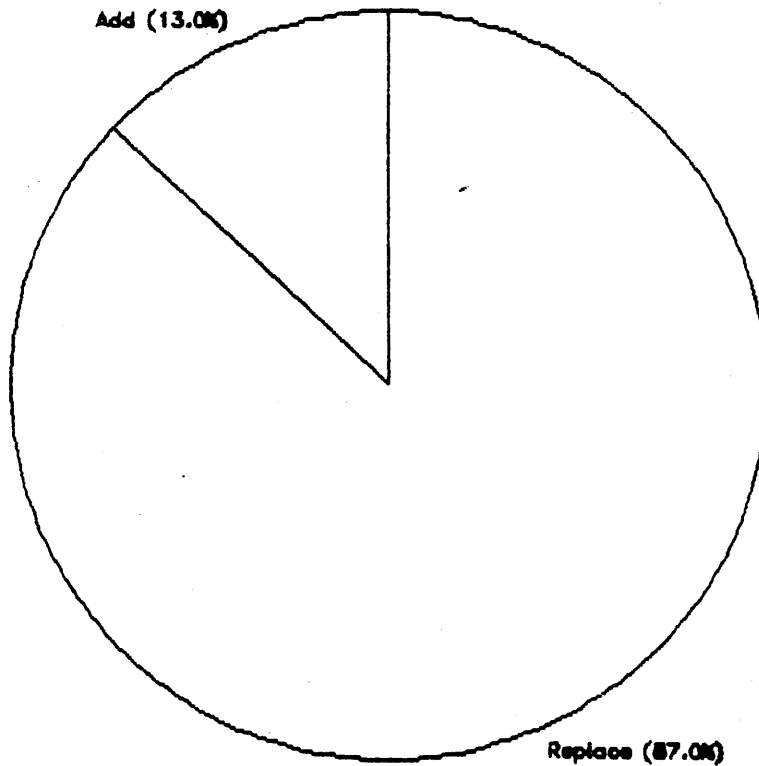
## Mainframe Purchasing Plans
-----------------------------
### (US Establishments planning to purchase during '85-86)

|         | % $250K+ units | % $2M+ units |
|---------|----------------|--------------|
| Replace | 78%            | 87%          |
| Add     | 9%             | 13%          |
| New     | 13%            | 0%           |

COMTEC

All initial mainframe purchases are systems smaller than $2M

Most mainframes in the $2M range are purchased by mainframe
    installations

## Market Data
----------

Large market - $20B in 1990, 24% of total

Low growth - 7% CAGR

Technical segment - $4B in 1990, 15% CAGR

Dominated by IBM and PCMs - 87% of revenues

Almost all systems run    traditional,    commercial production
    applications - 93%

All $2M+ mainframes are purchased as replacements or additions to
    existing mainframe installations

# $2M PLUS PROJECT

*Requirement & opportunity summary*

---

- **NEEDS**

    - Office and manufacturing have no need for a large monolithic system
    - Engineering & science need systems with very high disk & floating point performance & good price/performance
    - MIS needs a commercial transaction processing, information center, and production system


- **OPPORTUNITY**

    - Small outside the MIS area
    - Represents the tail end of a large opportunity in the $1M to $2M space

# Requirement and opportunity summary

*(continued)*

---

- **Critical investment areas**

  - Production system applications
      Transaction processing
  - Scientific application performance -
      Vectors
  - System/peripheral reliability
    and performance
  - Balanced system performance
      MIPS
      MFLOPS
      Single channel disk I/O


- **All these investments are needed even if we do not build a monolithic $2M+ system**

# $2M PLUS PROJECT

## *Purchasing criteria (market groups)*

---

- **Ability to do the job**

    - **Applications**
    - **Performance**

        **ESG, LDP; Application turnaround**
        **MIS: Transactions per second**
        **OIS: Number of users supported**

# Purchasing Criteria

## *(continued)*

---

- **System reliability**

    - Application MTTR most critical
    - Application MTBF close to a year

- **Vendor recognition**

    - Business partner
    - Viable

        Committed to solving their problems
        Dependable

|                   | OIS | ESG | MFG | LDP | MIS |
|-------------------|-----|-----|-----|-----|-----|
| Applications      | *   | *   | *   | *   | *   |
| System reliability |     | *   | *   | *   | *   |
| Performance       | *   | *   |     | *   | *   |
| Vendor recognition | *   | *   |     | *   | *   |

OIS

       Approach - Integrated systems
       Capacity and ability to grow
       Ability to support large numbers of users

MIS

       Adequate systems for job at hand - reliability
       Recognition as viable vendor
       Application support
              Internal applications development
              Third party software

MFG

       Complete solutions
       System reliability
       Support

SCI

       Performance
       Functionality (# of applications)
       Reliability

ESG

       Ability to do job - Performance in M/GFLOPS
       Reliability of system
       Service Capabilities

# $2M PLUS PROJECT

# Barriers to Digital success

## (Market groups)

---

- **Perceived system reliability**

    - MTBF to short
    - MTTR to long
    - Greatest problem with peripherals

- **Image/recognition**

    - Business partnership
    - Not viewed as a commercial vendor
    - Ability/commitment to provide
      "fail safe" service

|                      | OIS | ESG | MFG | LDP | MIS |
|----------------------|-----|-----|-----|-----|-----|
| Image/recognition    | *   |     |     |     | *   |
| Perceived reliability| *   | *   |     | *   |     |
| Ability to sell      |     | *   |     |     | *   |
| Alternate solutions  | *   |     | *   |     |     |

**OIS**

Digital not viewed as a provider of mainstream applications

Digitals ability/commitment to provide "fail safe "service

**MIS**

Investment in existing software systems

Lack of image as a Commercial IS vendor

Lack of software (TP, Database)

**SCI**

IBM entrenchment

Application either run on smaller or larger computers

Digital's reputation for poor reliability, difficult to do business with

**ESG**

Ability to provide systems with perceived value of $2M

Perceived problems with system reliability

Ability to maintain leadership in interim period

# $2M PLUS PROJECT

*Investment/system requirements (Mkt. groups)*

---

- **Applications**

- **Floating point performance - Vector H/W**

  - **Transparent, Automatic Decomposition/ Vectorization**

- **Transaction processing**

# *Investment/system requirements (Mkt. groups)*

---

- **Disk I/O**

    - **Throughput to application**
    - **Backup performance**


- **Reliability**


- **System management**

    - **Large databases**

|                          | OIS | ESG | MFG | LDP | MIS |
|--------------------------|-----|-----|-----|-----|-----|
| Transaction processing   |     |     | *   |     | *   |
| Performance, MFLOPS/MIPS  |     |     | *   |     | *   |
| Performance, Disk         | *   |     |     | *   | *   |
| Automatic Decomp./Vect.   | *   |     |     | *   |     |

MIS

      Storage 6-8GB/MIP  
      Transaction processing @ 150 TPS  
      Dramatically increased reliability

OIS

      Recommends investing in distributes processing

SCI

      Project-oriented sales teams  
      Application throughput  
            single job  
                  400 MFLOPS  
                  200 VUPS  
                  10-30 MB/SEC single channel I/O  
      VAX fortran compatibility

ESG

      High reliability  
      Fast memory/disk access  
      SMP

# Opportunity for Digital
# (Market groups)

| | 1990 units | 1995 units |
|---|---|---|
| Manufacturing | 10 | 30 |
| Engineering | 20 | 35 |
| Office | 20 | 50 |
| Science | 32 | 60 |
| MIS | 340 | 700 |
| TOTAL | 422 | 875 |
| Market share | 4. 4% | 6. 4% |

- **No cluster add-ons included**

- **System value over $2M**

## Requirement and Opportunity Summary
------------------------------------

Needs

>   Office and Manufacturing have no need for a large
>   monolithic system
>
>   Engineering and Science need systems with very high  disk
>   and    floating    point    performance      with    good
>   price/performance
>
>   MIS needs a    commercial    transaction     processing,
>   Information Center and production system

Opportunity

>   Small outside the MIS area
>
>   Represents the tail end of a large opportunity in the $1M
>   to $2M space

Requirement and Opportunity Summary
                    ------------------------------------

Critical investment areas

        Production system applications

               Transaction processing

        Scientific application performance

               Vectors

        System/peripheral reliability and performance

        Balanced system performance

               MIPS

               MFLOPS

               Single channel disk I/O

ALL THESE INVESTMENT ARE  NEEDED  EVEN  IF  WE  DO  NOT  BUILD  A
MONOLITHIC $2M+ SYSTEM

# $2M PLUS PROJECT

## *RISKS*

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- Program incomplete before product

- Retaliation by IBM

- Japan

- Opportunity risk