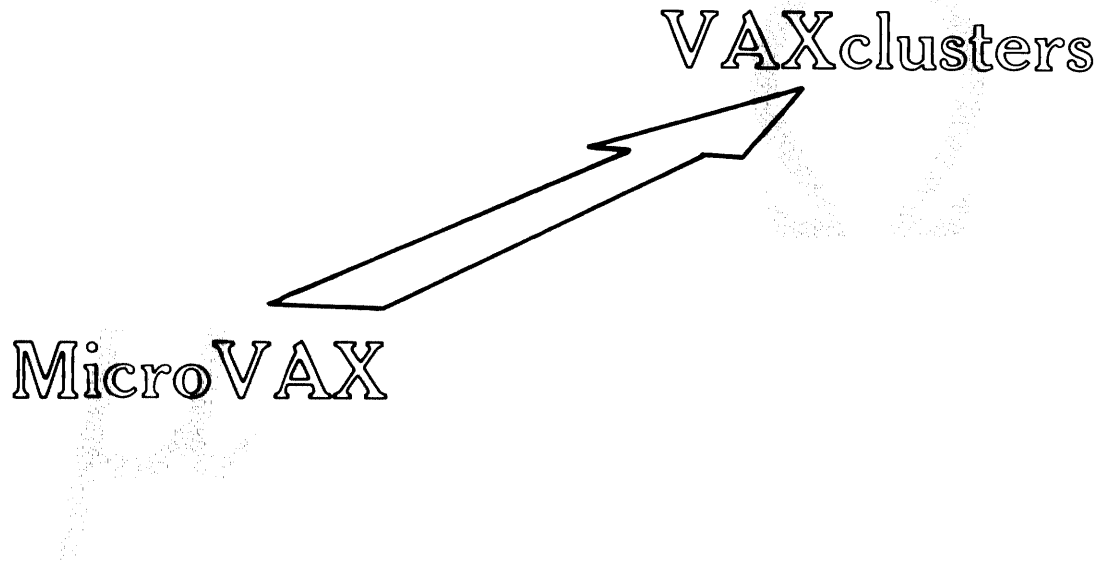


competitive update

SPECIAL ISSUE

JANUARY 28, 1985

VAXclusters VS IBM Mainframes



Compatibility..... The Competitive Edge

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V A X B A S E P R O D U C T M A R K E T I N G

VAXCLUSTERED 8600s VS. THE IBM 308X FAMILY

Roger Bisbo
DTN 229-6346
LTN1-2/D08 RCS: LTNX

The spectacular success of VAXclusters and the threat of VAXclustered 8600s positioned against IBM's 308X family appears to have resulted in a major IBM campaign to discredit the viability of VAXclusters. Prior to the introduction of the VAX 8600, IBM sales reps were calling VAXclusters a short-term product designed to cover our inability to get high-end machines to market. Now we have been assailed by several derogatory articles in publications which are widely read in the IBM mainframe community proclaiming that it is inappropriate to speak of VAXclustered 8600s as competitors to IBM's 308X family of large-scale systems. What have we done to IBM and its followers that they feel compelled to spew forth so much VAXcluster-inspired negative rhetoric?

Simply put, the introduction of VAXclustered 8600s has placed an excellent interactive computing environment in the heart of IBM's bread-and-butter, batch-oriented mainframe markets. Far from being a short-term product, VAXclusters are the result of major engineering investments in interconnect technology made over the last ten years. This technology has been widely accepted by our customers and we have installed over 1,500 VAXclusters.

VAXclustered 8600s have positioned us as a full-range information-processing vendor. We now offer an alternative, interactive style of computing to IBM's 20-year old S/360/370 batch architecture; and we have done this at a critical period in the evolution of IBM's installed mainframe base -- critical for many reasons.

THE IBM MAINFRAME BASE

First, despite all of IBM's promotion of the "Information Center" concept as a means for the central DP shop to provide application development relief to the end user, the backlog of applications waiting to be developed in Fortune-500 companies stands at an all-time high. End users have to wait years for new programs and systems to be implemented. At a time when access to corporate information is the competitive edge many companies need, IBM has yet to deliver the style of computing required to effectively accomplish this on their mainframe systems. Approximately 70%-80% of the processing done by these systems is still batch.

Second, many companies are moving to decentralize their organizational structures. This is being done to push down decision-making responsibility to line managers and reduce corporate staffs. As a result, data processing functions are also being decentralized. These companies have, over the years, climbed the ladder of IBM's largely incompatible mainframe operating systems (DOS/VS to VS1 to VS2 to MVS to MVS/XA). Each step up this ladder has increased their system support staffs and incurred a great deal of conversion expense.

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However, since IBM's large mainframe commercial operating system does not run on small to mid-range 4300 CPUs, these companies are now faced with supporting multiple O/S environments to implement their corporate decentralization strategies. This means duplicate application development and, more significantly, duplicate software maintenance. These lead to escalating application development costs and even larger application backlogs.

Third, there are strong indications that the System/38 is their next mainframe architecture and users of low to mid-range 4300s running the DOS/VSE operating system would be "encouraged" to migrate to System/38 over the next few years. Clearly, migration to System/38 will represent yet another, and very major, conversion expense for these IBM customers.

Certainly the very existence of the System/38 family, which with the recent addition of the Models 20 and 40 covers much of the 4300 space, is a defacto admission of the failure of the 4300 to provide an acceptable distributed solution for many customers. One can only wonder what level of commitment IBM will retain for even its high-end operating system environment as System/38 moves up the performance ramp.

Fourth, the extraordinary success of the IBM Personal Computer, which delivered interactive computing directly to the desktop, has fueled an end-user revolt in many large companies. As PCs have proliferated, the central DP shops have recognized this inherent threat to their dominance and have moved to place strict controls on PC acquisition. This situation has been aggravated by the fundamental incompatibility of the PC with IBM's mainframe offerings (ASCII vs. EBCDIC). This makes interoperability expensive and cumbersome.

Fifth, at a time when local area networks are being installed by many large companies as a means to support the PC explosion and the move to interactive processing, IBM has indicated that its own proprietary LAN will not be fully available for another two-to-three years. Even then it may not be worth waiting for. Several distributors and customers have complained publicly about the price and quality of the cabling system components (reference Communications Week dated December 31, 1984, page 1).

Sixth, IBM's aggressive behavior vis-a-vis the vendors of IBM plug-compatible mainframes, personal computers and peripherals raises the specter of total IBM account dominance in the mainframe arena. The PCM vendors have acted as the "invisible hand" of the marketplace -- competition. As these vendors continue to withdraw from selling plug-compatible gear, there will be less and less incentive for IBM to continue to maintain current rates of price/ performance improvement. Those accounts following a single-vendor strategy may well be faced with paying more for less.

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We bring to these IBM customers a family of systems -- from MicroVAX I to VAXclustered 8600s -- which offers a compatible range of information processing capacity unavailable from IBM. We provide the ideal solution for the implementation of corporate information processing decentralization strategies. We are totally committed to the VAX architecture and the VMS application environment, and that means no more conversions for users who adopt our style of computing. The IBM PC is more compatible with our products than with IBM's and we are delivering Ethernet products, an industry standard, today. At a time when it makes sense economically to embrace a dual-vendor strategy to support information processing objectives, we are the alternative to IBM.

Considering all this, is it little wonder that we have been the target of so much negative rhetoric?

MEETING INFORMATION PROCESSING GROWTH DEMAND

A key strength of our VAXcluster style of computing is cost-effective incremental growth. This provides significant growth options beyond those previously available with "DEC-networked" systems. We will now assess how we better serve the fast-growing information processing needs of today's decentralized organizations.

The following analysis is based on a CPU capacity growth of approximately 40% compounded annually (the growth rate of IBM mainframe installed-base MIPS). Initially, it is assumed that about two VAX 8600 worth of CPU capacity is installed. The target configurations for a five-year growth period are:

| <u>Year</u> | <u>Capacity X 8600</u> | <u>Aggr MB</u> | <u>Terminals</u> | <u>Disk GB</u> | <u>125 IPS Tapes</u> | <u>1200 LPM Printers</u> |
|-------------|----------------------------|--------------------|------------------|--------------------|--------------------------|------------------------------|
| 1 | 2 | 24 | 512 | 20.0 | 3 | 2 |
| 2 | 3 | 48 | 768 | 22.5 | 3 | 3 |
| 3 | 4 | 64 | 1024 | 25.0 | 3 | 4 |
| 4 | 6 | 96 | 1536 | 30.0 | 4 | 6 |
| 5 | 8 | 132 | 2048 | 40.0 | 6 | 8 |

Two growth scenarios are constructed following the above configuration guidelines:

- (1) A VAXcluster is incrementally expanded by adding VAX 8600 processors.
- (2) An IBM 308X mainframe system running the MVS/XA operating system is field upgraded to meet the yearly capacity growth demands.

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The following tables summarize the cumulative yearly costs (rounded to nearest \$1,000) of both growth scenarios. All configuration details are provided in the attached appendices:

| VAXcluster | Year | | | | |
|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|
| | 1 | 2 | 3 | 4 | 5 |
| H/W Purchase | \$2,820K | \$3,973K | \$5,079K | \$7,231K | \$9,653K |
| H/W Maintenance | 200K | 547K | 998K | 1,629K | 2,485K |
| S/W Licenses | 71K | 100K | 129K | 185K | 240K |
| S/W Maintenance | 55K | 89K | 128K | 174K | 230K |
| Total | \$3,146K | \$4,709K | \$6,333K | \$9,219K | \$12,607K |

| IBM Mainframe | Year | | | | |
|-----------------|-----------------|-----------------|------------------|------------------|------------------|
| | 1 | 2 | 3 | 4 | 5 |
| H/W Purchase | \$5,214K | \$7,823K | \$9,433K | \$15,481K | \$17,633K |
| H/W Maintenance | 141K | 440K | 839K | 1,398K | 2,198K |
| S/W Licenses | 70K | 70K | 70K | 70K | 70K |
| S/W Maintenance | 222K | 469K | 716K | 975K | 1,234K |
| Total | \$5,648K | \$8,802K | \$11,059K | \$17,924K | \$21,137K |

Following the stated growth requirements, the five-year sum of costs of the IBM mainframe approach is 68% more (\$8.5 million more) than the VAXcluster solution. A five-year cost-of-ownership analysis of these two growth scenarios (taking into account the cost of capital, investment tax credits, marginal tax rate, salvage value and using the 5-year ACRS depreciation method) reveals that the IBM mainframe would cost the customer 76% more than the VAXcluster solution (\$5.8 versus \$10.3 million)!

Other Support Costs

It is important to note that no user support personnel costs are included in this analysis to avoid blurring pure vendor product cost comparisons. In reality, the IBM mainframe software support personnel costs would be at least five times that of the VAXcluster. If the VAXcluster required two people, the IBM mainframe would need at least ten -- assuming burdened annual labor rate of \$60,000 per person would add \$120,000/year to VAXcluster operating costs while increasing yearly IBM mainframe costs by \$600,000!

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COMPUTER ROOM REQUIREMENTS

In addition to the financial aspects of acquisition and maintenance are the computer room requirements of the selected system. The following analysis illustrates the cumulative five-year computer room environmental needs of both the VAXcluster and the IBM mainframe. Air conditioning capacity is represented by the number of kBTUs (British Thermal Units X 1,000) per hour and power consumption is given in kVA (Volt-Amps X 1,000) per hour. Two figures appear for floorspace. Footprint is the area (in square feet) covered by just the hardware. Computer room area (CR Area) is the space needed for installed hardware, including required service clearances:

| VAXcluster | Year | | | | |
|-----------------|------|-----|-----|-------|-------|
| | 1 | 2 | 3 | 4 | 5 |
| kBTUs | 187 | 231 | 272 | 362 | 485 |
| kVAs | 66 | 79 | 92 | 121 | 162 |
| Footprint Sq Ft | 166 | 206 | 242 | 323 | 431 |
| CR Area Sq Ft | 596 | 722 | 831 | 1,078 | 1,376 |

| IBM Mainframe | Year | | | | |
|-----------------|-------|-------|-------|-------|-------|
| | 1 | 2 | 3 | 4 | 5 |
| kBTUs | 215 | 239 | 288 | 492 | 541 |
| kVAs | 69 | 83 | 94 | 161 | 180 |
| Footprint Sq Ft | 271 | 300 | 327 | 523 | 583 |
| CR Area Sq Ft | 1,068 | 1,158 | 1,309 | 1,953 | 2,137 |

Across the board, the VAXcluster's computer room requirements are less than IBM's mainframe. At a time when computer room space is at a premium in most large companies, the IBM mainframe requires 55% more floorspace!

SUMMARY

VAXclusters are delivering exceptional interactive capabilities and unique growth opportunities TODAY which IBM has yet to provide their S/360/370 mainframe customers. The introduction of VAXclustered 8600s has positioned us as a full-range information processing vendor and an alternate to IBM at a critical period in the evolution of IBM's mainframe base. Large companies implementing corporate decentralization strategies will find the VAX architecture and the VMS application environment the ideal computing style to support their objectives.

However, we are not in the 308X "replacement business." This has been the unsuccessful strategy of the "BUNCH" companies -- we are different and unique. VAXclustered 8600s remove a key competitive advantage that IBM has always had against us -- upward growth capability. For new application areas we now offer a wider family of compatible systems than IBM.

Spread the word and good selling!

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SUMMARIES

Appendix A Notes:

This appendix contains summary data which is extracted from the detailed configurations found in Appendix B and the computer room layouts in Appendix C. Page 8 presents five-year incremental and cumulative costs and computer room requirements for both the VAXcluster and the IBM mainframe. The rows starting with "1st Year" represent the first year costs associated with each individual year's hardware and software upgrades. It adjusts for any warranty allowances applicable to these items.

Page 9 is an analysis, by major component, of the five-year cumulative costs. The component costs are presented for both the VAXcluster and the IBM mainframe, the difference is calculated ("DEC-IBM" table) and the delta percent is generated ("(DEC-IBM)/IBM" table). Finally, a component distribution is provided to illustrate how costs are distributed within a given configuration growth scenario.

Pages 10 and 11 present a cost of ownership analysis for both scenarios. The only difference between pages 10 and 11 is that page 10 assumes a 20% hardware salvage value whereas page 11 assumes no hardware salvage value. Both five-year and ten-year costs of ownership are calculated. The ten-year cost of ownership assumes hardware and software maintenance fees remain at year-five levels and that no additional software license fees are incurred.

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>>> SUMMARY <<<

| | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|----------------------|-------------|-------------|--------------|--------------|--------------|
| VAXcluster | | | | | |
| Incremental: | | | | | |
| Net H/W Purch | \$2,819,939 | \$1,152,736 | \$1,106,286 | \$2,151,663 | \$2,422,313 |
| 1st Yr H/W Maint | \$200,223 | \$79,956 | \$76,833 | \$155,763 | \$171,612 |
| Next Yrs H/W Maint | \$266,964 | \$106,608 | \$102,444 | \$207,684 | \$228,816 |
| Net S/W Lic | \$70,902 | \$29,198 | \$29,198 | \$55,475 | \$54,891 |
| 1st Yr S/W Maint | \$55,000 | \$4,200 | \$4,200 | \$8,400 | \$8,400 |
| Next Yr S/W Maint | \$30,000 | \$4,200 | \$4,200 | \$8,400 | \$8,400 |
| kBTU | 187.4 | 43.6 | 41.3 | 89.9 | 122.5 |
| kVA | 65.5 | 13.9 | 12.8 | 28.5 | 40.8 |
| Footprint Sq Ft | 165.7 | 40.6 | 35.3 | 81.4 | 108.1 |
| CR Area Sq Ft | 596.2 | 125.8 | 109.1 | 246.5 | 298.4 |
| Cumulative: | | | | | |
| Net H/W Purch | \$2,819,939 | \$3,972,675 | \$5,078,961 | \$7,230,625 | \$9,652,938 |
| H/W Maint | \$200,223 | \$547,143 | \$997,548 | \$1,629,327 | \$2,484,639 |
| Net S/W Lic | \$70,902 | \$100,099 | \$129,297 | \$184,772 | \$239,663 |
| S/W Maint | \$55,000 | \$89,200 | \$127,600 | \$174,400 | \$229,600 |
| Sum of Costs | \$3,146,063 | \$4,709,117 | \$6,333,406 | \$9,219,123 | \$12,606,840 |
| kBTU | 187.4 | 231.0 | 272.3 | 362.2 | 484.7 |
| kVA | 65.5 | 79.4 | 92.2 | 120.7 | 161.5 |
| Footprint Sq Ft | 165.7 | 206.3 | 241.6 | 323.0 | 431.1 |
| CR Area Sq Ft | 596.2 | 722.0 | 831.0 | 1077.5 | 1375.9 |
| IBM Mainframe | | | | | |
| Incremental: | | | | | |
| Net H/W Purch | \$5,214,423 | \$2,608,780 | \$1,610,045 | \$6,047,841 | \$2,152,397 |
| 1st Yr H/W Maint | \$141,336 | \$47,295 | \$58,437 | \$131,567 | \$112,010 |
| Next Yrs H/W Maint | \$251,088 | \$90,204 | \$85,932 | \$260,838 | \$151,410 |
| Net S/W Lic | \$70,427 | \$0 | \$0 | \$0 | \$0 |
| 1st Yr S/W Maint | \$221,518 | \$5,335 | \$0 | \$11,220 | \$0 |
| Nxt Yr S/W Maint | \$241,656 | \$5,820 | \$0 | \$12,240 | \$0 |
| kBTU | 215.4 | 23.9 | 48.3 | 204.6 | 48.3 |
| kVA | 69.0 | 14.1 | 10.5 | 67.3 | 19.0 |
| Footprint Sq Ft | 270.6 | 29.8 | 26.2 | 196.8 | 59.1 |
| CR Area Sq Ft | 1068.0 | 90.5 | 150.9 | 643.4 | 184.6 |
| Cumulative: | | | | | |
| Net H/W Purch | \$5,214,423 | \$7,823,203 | \$9,433,247 | \$15,481,089 | \$17,633,486 |
| H/W Maint | \$141,336 | \$439,719 | \$839,448 | \$1,398,239 | \$2,198,310 |
| Net S/W Lic | \$70,427 | \$70,427 | \$70,427 | \$70,427 | \$70,427 |
| S/W Maint | \$221,518 | \$468,509 | \$715,985 | \$974,681 | \$1,234,397 |
| Sum of Costs | \$5,647,704 | \$8,801,858 | \$11,059,107 | \$17,924,435 | \$21,136,620 |
| kBTU | 215.4 | 239.3 | 287.6 | 492.2 | 540.5 |
| kVA | 69.0 | 83.1 | 93.6 | 160.9 | 179.9 |
| Footprint Sq Ft | 270.6 | 300.4 | 326.6 | 523.4 | 582.5 |
| CR Area Sq Ft | 1068.0 | 1158.4 | 1309.3 | 1952.7 | 2137.3 |

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>>> COST ANALYSIS <<<<

| Cumulative SOC | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|----------------|-------------|-------------|-------------|-------------|--------------|
| VAXcluster | | | | | |
| CPU | \$893,000 | \$1,388,900 | \$1,867,700 | \$2,767,844 | \$3,681,524 |
| Disk | \$896,896 | \$1,059,596 | \$1,192,946 | \$1,464,741 | \$1,947,995 |
| Local Term | \$588,991 | \$831,191 | \$1,073,391 | \$1,536,131 | \$1,996,779 |
| Remote Term | \$296,380 | \$520,326 | \$744,273 | \$1,183,851 | \$1,623,111 |
| Tape | \$93,730 | \$93,730 | \$93,730 | \$117,955 | \$190,805 |
| Printer | \$50,942 | \$78,932 | \$106,922 | \$160,103 | \$212,724 |
| H/W Maint | \$200,223 | \$547,143 | \$997,548 | \$1,629,327 | \$2,484,639 |
| S/W Charges | \$125,902 | \$189,299 | \$256,897 | \$359,172 | \$469,263 |
| Total | \$3,146,063 | \$4,709,117 | \$6,333,406 | \$9,219,123 | \$12,606,840 |

| | | | | | |
|---------------|-------------|-------------|--------------|--------------|--------------|
| IBM Mainframe | | | | | |
| CPU | \$2,415,000 | \$3,900,000 | \$4,550,000 | \$8,150,000 | \$8,150,000 |
| Disk | \$864,150 | \$1,032,930 | \$1,097,370 | \$1,630,540 | \$1,888,300 |
| Local Term | \$1,031,475 | \$1,462,335 | \$1,839,482 | \$2,648,083 | \$3,441,446 |
| Remote Term | \$693,348 | \$1,217,487 | \$1,666,581 | \$2,611,836 | \$3,621,660 |
| Tape | \$71,720 | \$71,720 | \$71,720 | \$93,805 | \$115,890 |
| Printer | \$138,730 | \$138,730 | \$208,095 | \$346,825 | \$416,190 |
| H/W Maint | \$141,336 | \$439,719 | \$839,448 | \$1,398,239 | \$2,198,310 |
| S/W Charges | \$291,945 | \$538,936 | \$786,412 | \$1,045,108 | \$1,304,824 |
| Total | \$5,647,704 | \$8,801,858 | \$11,059,107 | \$17,924,435 | \$21,136,620 |

IBM-DEC:

| Cumulative SOC | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|----------------|-------------|-------------|-------------|-------------|-------------|
| CPU | \$1,522,000 | \$2,511,100 | \$2,682,300 | \$5,382,156 | \$4,468,476 |
| Disk | (\$32,746) | (\$26,666) | (\$95,576) | \$165,799 | (\$59,695) |
| Local Term | \$442,484 | \$631,144 | \$766,091 | \$1,111,952 | \$1,444,667 |
| Remote Term | \$396,968 | \$697,161 | \$922,308 | \$1,427,985 | \$1,998,550 |
| Tape | (\$22,010) | (\$22,010) | (\$22,010) | (\$24,150) | (\$74,915) |
| Printer | \$87,788 | \$59,798 | \$101,173 | \$186,722 | \$203,466 |
| H/W Maint | (\$58,887) | (\$107,424) | (\$158,100) | (\$231,089) | (\$286,329) |
| S/W Charges | \$166,043 | \$349,637 | \$529,515 | \$685,936 | \$835,561 |
| Total | \$2,501,640 | \$4,092,741 | \$4,725,702 | \$8,705,312 | \$8,529,780 |

(IBM-DEC)/DEC:

| Cumulative SOC | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|----------------|--------|--------|--------|--------|--------|
| CPU | 170.4% | 180.8% | 143.6% | 194.5% | 121.4% |
| Disk | -3.7% | -2.5% | -8.0% | 11.3% | -3.1% |
| Local Term | 75.1% | 75.9% | 71.4% | 72.4% | 72.3% |
| Remote Term | 133.9% | 134.0% | 123.9% | 120.6% | 123.1% |
| Tape | -23.5% | -23.5% | -23.5% | -20.5% | -39.3% |
| Printer | 172.3% | 75.8% | 94.6% | 116.6% | 95.6% |
| H/W Maint | -29.4% | -19.6% | -15.8% | -14.2% | -11.5% |
| S/W Charges | 131.9% | 184.7% | 206.1% | 191.0% | 178.1% |
| Total | 79.5% | 86.9% | 74.6% | 94.4% | 67.7% |

DEC Dist:

| Cumulative SOC | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|----------------|--------|--------|--------|--------|--------|
| CPU | 28.4% | 29.5% | 29.5% | 30.0% | 29.2% |
| Disk | 28.5% | 22.5% | 18.8% | 15.9% | 15.5% |
| Local Term | 18.7% | 17.7% | 16.9% | 16.7% | 15.8% |
| Remote Term | 9.4% | 11.0% | 11.8% | 12.8% | 12.9% |
| Tape | 3.0% | 2.0% | 1.5% | 1.3% | 1.5% |
| Printer | 1.6% | 1.7% | 1.7% | 1.7% | 1.7% |
| H/W Maint | 6.4% | 11.6% | 15.8% | 17.7% | 19.7% |
| S/W Charges | 4.0% | 4.0% | 4.1% | 3.9% | 3.7% |
| Total | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

IBM Dist:

| Cumulative SOC | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 |
|----------------|--------|--------|--------|--------|--------|
| CPU | 42.8% | 44.3% | 41.1% | 45.5% | 38.6% |
| Disk | 15.3% | 11.7% | 9.9% | 9.1% | 8.9% |
| Local Term | 18.3% | 16.6% | 16.6% | 14.8% | 16.3% |
| Remote Term | 12.3% | 13.8% | 15.1% | 14.6% | 17.1% |
| Tape | 1.3% | 0.8% | 0.6% | 0.5% | 0.5% |
| Printer | 2.5% | 1.6% | 1.9% | 1.9% | 2.0% |
| H/W Maint | 2.5% | 5.0% | 7.6% | 7.8% | 10.4% |
| S/W Charges | 5.2% | 6.1% | 7.1% | 5.8% | 6.2% |
| Total | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |

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>>> COST OF OWNERSHIP <<<

Overall Parameters:
 Cost of Capital 20%
 Investment Tax Credit 10%
 Marginal Tax Rate 46%
 Salvage Value 20%
 Depreciation Method 5-Year ACRS

| | Start Yr 1 | End Yr 1 | End Yr 2 | End Yr 3 | End Yr 4 | End Yr 5 |
|---------------------------|--------------|-------------|-------------|-------------|-------------|---------------|
| VAXcluster | | | | | | |
| Gross Investment | \$2,819,939 | \$1,152,736 | \$1,106,286 | \$2,151,663 | \$2,422,313 | |
| Less ITC | (\$281,994) | (\$115,274) | (\$110,629) | (\$215,166) | (\$242,231) | |
| Net Investment | \$2,537,945 | \$1,037,463 | \$995,658 | \$1,936,497 | \$2,180,082 | |
| Operating Costs: | | | | | | |
| H/W Maint | \$0 | \$200,223 | \$346,920 | \$450,405 | \$631,779 | \$855,312 |
| S/W Lic | \$70,902 | \$0 | \$29,198 | \$29,198 | \$55,475 | \$54,891 |
| S/W Maint | \$55,000 | \$0 | \$34,200 | \$38,400 | \$46,800 | \$55,200 |
| Total Operating Costs | \$125,902 | \$200,223 | \$410,318 | \$518,003 | \$734,054 | \$965,403 |
| Depreciation: | | | | | | |
| Year 0 H/W | | \$338,393 | \$496,309 | \$473,750 | \$473,750 | \$473,750 |
| Year 1 H/W | | | \$138,328 | \$202,882 | \$193,660 | \$193,660 |
| Year 2 H/W | | | | \$132,754 | \$194,706 | \$185,856 |
| Year 3 H/W | | | | | \$258,200 | \$378,693 |
| Year 4 H/W | | | | | | \$290,678 |
| Total Depreciation | | \$338,393 | \$634,638 | \$809,386 | \$1,120,315 | \$1,522,636 |
| Total Expenses | \$125,902 | \$538,616 | \$1,044,955 | \$1,327,388 | \$1,854,370 | \$2,488,039 |
| Tax Savings | \$57,915 | \$247,763 | \$480,679 | \$610,599 | \$853,010 | \$1,144,498 |
| Op Costs Less Tax Savings | \$67,987 | (\$47,540) | (\$70,362) | (\$92,596) | (\$118,956) | (\$179,095) |
| Year 0 H/W Salvage Value | \$0 | \$0 | \$0 | \$0 | \$0 | (\$563,988) |
| Cash Outflow | \$2,605,932 | \$989,922 | \$925,296 | \$1,843,901 | \$2,061,126 | (\$743,082) |
| 5-Year Cost of Ownership | \$5,835,862 | | | | | |
| 10-Year Cost of Ownership | \$5,673,030 | | | | | |
| IBM Mainframe | | | | | | |
| Gross Investment | \$5,214,423 | \$2,608,780 | \$1,610,045 | \$6,047,841 | \$2,152,397 | |
| Less ITC | (\$521,442) | (\$260,878) | (\$161,004) | (\$604,784) | (\$215,240) | |
| Net Investment | \$4,692,980 | \$2,347,902 | \$1,449,040 | \$5,443,057 | \$1,937,158 | |
| Operating Costs: | | | | | | |
| H/W Maint | \$0 | \$141,336 | \$298,383 | \$399,729 | \$558,791 | \$800,072 |
| S/W Lic | \$70,427 | \$0 | \$0 | \$0 | \$0 | \$0 |
| S/W Maint | \$0 | \$221,518 | \$246,991 | \$247,476 | \$258,696 | \$259,716 |
| Total Operating Costs | \$70,427 | \$362,854 | \$545,374 | \$647,205 | \$817,487 | \$1,059,788 |
| Depreciation: | | | | | | |
| Year 0 H/W | | \$625,731 | \$917,738 | \$876,023 | \$876,023 | \$876,023 |
| Year 1 H/W | | | \$313,054 | \$459,145 | \$438,275 | \$438,275 |
| Year 2 H/W | | | | \$193,205 | \$283,368 | \$270,488 |
| Year 3 H/W | | | | | \$725,741 | \$1,064,420 |
| Year 4 H/W | | | | | | \$258,288 |
| Total Depreciation | | \$625,731 | \$1,230,792 | \$1,528,374 | \$2,323,407 | \$2,907,493 |
| Total Expenses | \$70,427 | \$988,585 | \$1,776,166 | \$2,175,579 | \$3,140,893 | \$3,967,281 |
| Tax Savings | \$32,396 | \$454,749 | \$817,036 | \$1,000,766 | \$1,444,811 | \$1,824,949 |
| Op Costs Less Tax Savings | \$38,031 | (\$91,895) | (\$271,662) | (\$353,561) | (\$627,324) | (\$765,162) |
| Year 0 H/W Salvage Value | \$0 | \$0 | \$0 | \$0 | \$0 | (\$1,042,885) |
| Cash Outflow | \$4,731,011 | \$2,256,007 | \$1,177,378 | \$5,089,496 | \$1,309,833 | (\$1,808,046) |
| 5-Year Cost of Ownership | \$10,279,008 | | | | | |
| 10-Year Cost of Ownership | \$9,622,206 | | | | | |

FOR INTERNAL USE ONLY

>>> COST OF OWNERSHIP <<<

Overall Parameters:

| | |
|-----------------------|-------------|
| Cost of Capital | 20% |
| Investment Tax Credit | 10% |
| Marginal Tax Rate | 46% |
| Salvage Value | 0% |
| Depreciation Method | 5-Year ACRS |

VAXcluster

| | Start Yr 1 | End Yr 1 | End Yr 2 | End Yr 3 | End Yr 4 | End Yr 5 |
|---------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Gross Investment | \$2,819,939 | \$1,152,736 | \$1,106,286 | \$2,151,663 | \$2,422,313 | |
| Less ITC | (\$281,994) | (\$115,274) | (\$110,629) | (\$215,166) | (\$242,231) | |
| Net Investment | \$2,537,945 | \$1,037,463 | \$995,658 | \$1,936,497 | \$2,180,082 | |
| Operating Costs: | | | | | | |
| H/W Maint | \$0 | \$200,223 | \$346,920 | \$450,405 | \$631,779 | \$855,312 |
| S/W Lic | \$70,902 | \$0 | \$29,198 | \$29,198 | \$55,475 | \$54,891 |
| S/W Maint | \$55,000 | \$0 | \$34,200 | \$38,400 | \$46,800 | \$55,200 |
| Total Operating Costs | \$125,902 | \$200,223 | \$410,318 | \$518,003 | \$734,054 | \$965,403 |
| Depreciation: | | | | | | |
| Year 0 H/W | | \$422,991 | \$620,387 | \$592,187 | \$592,187 | \$592,187 |
| Year 1 H/W | | | \$172,910 | \$253,602 | \$242,075 | \$242,075 |
| Year 2 H/W | | | | \$165,943 | \$243,383 | \$232,320 |
| Year 3 H/W | | | | | \$322,750 | \$473,366 |
| Year 4 H/W | | | | | | \$363,347 |
| Total Depreciation | | \$422,991 | \$793,297 | \$1,011,732 | \$1,400,394 | \$1,903,295 |
| Total Expenses | \$125,902 | \$623,214 | \$1,203,614 | \$1,529,735 | \$2,134,448 | \$2,868,698 |
| Tax Savings | \$57,915 | \$286,678 | \$553,663 | \$703,678 | \$981,846 | \$1,319,601 |
| Op Costs Less Tax Savings | \$67,987 | (\$86,455) | (\$143,345) | (\$185,675) | (\$247,792) | (\$354,198) |
| Year 0 H/W Salvage Value | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Cash Outflow | \$2,605,932 | \$951,007 | \$852,312 | \$1,750,822 | \$1,932,289 | (\$354,198) |
| 5-Year Cost of Ownership | \$5,793,037 | | | | | |
| 10-Year Cost of Ownership | \$5,857,931 | | | | | |

IBM Mainframe

| | | | | | | |
|---------------------------|--------------|-------------|-------------|-------------|-------------|---------------|
| Gross Investment | \$5,214,423 | \$2,608,780 | \$1,610,045 | \$6,047,841 | \$2,152,397 | |
| Less ITC | (\$521,442) | (\$260,878) | (\$161,004) | (\$604,784) | (\$215,240) | |
| Net Investment | \$4,692,980 | \$2,347,902 | \$1,449,040 | \$5,443,057 | \$1,937,158 | |
| Operating Costs: | | | | | | |
| H/W Maint | \$0 | \$141,336 | \$298,383 | \$399,729 | \$558,791 | \$800,072 |
| S/W Lic | \$70,427 | \$0 | \$0 | \$0 | \$0 | \$0 |
| S/W Maint | \$0 | \$221,518 | \$246,991 | \$247,476 | \$258,696 | \$259,716 |
| Total Operating Costs | \$70,427 | \$362,854 | \$545,374 | \$647,205 | \$817,487 | \$1,059,788 |
| Depreciation: | | | | | | |
| Year 0 H/W | | \$782,163 | \$1,147,173 | \$1,095,029 | \$1,095,029 | \$1,095,029 |
| Year 1 H/W | | | \$391,317 | \$573,932 | \$547,844 | \$547,844 |
| Year 2 H/W | | | | \$241,507 | \$354,210 | \$338,109 |
| Year 3 H/W | | | | | \$907,176 | \$1,330,525 |
| Year 4 H/W | | | | | | \$322,860 |
| Total Depreciation | | \$782,163 | \$1,538,490 | \$1,910,467 | \$2,904,259 | \$3,634,367 |
| Total Expenses | \$70,427 | \$1,145,017 | \$2,083,864 | \$2,557,672 | \$3,721,745 | \$4,694,154 |
| Tax Savings | \$32,396 | \$526,708 | \$958,577 | \$1,176,529 | \$1,712,003 | \$2,159,311 |
| Op Costs Less Tax Savings | \$38,031 | (\$163,854) | (\$413,203) | (\$529,324) | (\$894,516) | (\$1,099,523) |
| Year 0 H/W Salvage Value | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |
| Cash Outflow | \$4,731,011 | \$2,184,048 | \$1,035,837 | \$4,913,733 | \$1,042,641 | (\$1,099,523) |
| 5-Year Cost of Ownership | \$10,174,921 | | | | | |
| 10-Year Cost of Ownership | \$9,968,639 | | | | | |

FOR INTERNAL USE ONLY

DETAILED CONFIGURATIONS

Appendix B Notes:

This appendix contains the detailed configuration pricing information for the five-year growth scenarios. Each yearly price sheet depicts the upgrade costs for that year only. Refer to Appendix A for cumulative cost rollups. All applicable volume discounts have been applied and are shown in the yearly price sheets. Please note that IBM's "Volume Purchase Agreement" covers an 18-month period as compared to our own one-year time span. For this analysis three VPA periods are used: years 1 plus 2, 3 plus 4, and year 5.

HIGH AVAILABILITY

To the extent feasible, the configurations represent high-availability interactive computing environments. All critical VAXcluster controlling hardware components have backup units, as have most of the IBM mainframe hardware (note: disks were not duplicated). Important exceptions in the year 1 IBM configuration are the 3083 CPU and the 3082 Processor Controller. The failure of either of these components would make the entire configuration unavailable. In years 2 and 3 a failure in the single 3082 would also make the entire configuration unavailable. Only in years 4 and 5, where the 3084 four-processor system requires duplicate 3082s, would this single point of failure be eliminated.

Refer to pages 16 and 17 for year 1 component interconnection schematics for the VAXcluster and the IBM mainframe.

CPUs

Please note that the year 2 IBM mainframe configuration contains compute capacity above that required by the configuration guidelines. A 3081-GX would have provided about the right compute power; however, IBM does not allow upgrades from the 3083-JX to the 3081-GX. The configured 3081-KX is the only upgrade allowed.

Also note that the year 4 3084-QX has more memory than is required by the configuration guidelines. IBM only supports "symmetrical" memory upgrades to the 3084. This forced the 3084 upgrade to the 132MB level.

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TERMINAL CONFIGURATION

The configurations assume the following terminal population distribution:

| | ----- Year ----- | | | | |
|---------------|------------------|-----|-------|-------|-------|
| | 1 | 2 | 3 | 4 | 5 |
| Local | 416 | 576 | 736 | 1,056 | 1,376 |
| Remote: | | | | | |
| Single Term | 16 | 32 | 48 | 80 | 112 |
| 4 Term Group | 32 | 64 | 96 | 160 | 224 |
| 8 Term Group | 32 | 64 | 96 | 160 | 224 |
| 16 Term Group | 16 | 32 | 48 | 80 | 112 |
| | --- | --- | --- | --- | --- |
| Total | 512 | 768 | 1,024 | 1,536 | 2,048 |
| | === | === | ===== | ===== | ===== |

VAXcluster local terminals are on Ethernet Terminal Servers [please note that as this article goes to press the VAX 8600 Terminal Server software license prices have not been finalized; estimated pricing has been used in the detailed configurations]. Backup local terminal access is a standard feature of the Terminal Server. All H4000 Ethernet Transceivers are included in the price sheets. Remote terminal access is through dial-in DMZ32 lines. Single terminals utilize DF03-AA 1200/300 Baud Modems. Remote terminals in groups of 4 are attached to DFM04-AB Statistical Multiplexers with integral 4800 baud modems. Remote groups of 8 terminals attach to DFM08-AB Statistical Multiplexers with integral 4800 baud modems. Remote groups of 16 terminals utilize the DFM16-AB. VAXcluster backup remote access capability is provided by including enough additional spare DMZ32 lines, multiplexers and modems to cover the outage of any single VAX 8600. All modems and multiplexers (both host-side and remote) are included in the pricing sheets.

IBM mainframe local terminals attach through 3299-001 Terminal Multiplexers to 3274-41C channel-attached Terminal Controllers. Backup local terminal access is provided by 3814-A01 Control Unit switches (note: this is a manual failover initiated by computer room personnel -- the Ethernet Terminal Server provides this function automatically). Remote access for single, groups of 4 and groups of 8 terminals is provided by the 3276-012 Control Unit Display Station (allows up to 8 clustered terminals to be attached). Remote groups of 16 terminals are attached to 3274-61C communicating Terminal Controllers. Host-side remote access capability is provided by multiple 3725-001 Communications Controllers. IBM mainframe backup remote access capability is provided by including enough additional spare 3725 lines and modems to cover the failure of any single 3725.

TAPE DRIVES

Enough tape drives have been configured to support the backup of the entire disk configuration in about four hours.

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PRINTERS

Equivalent printing capacity in lines per minute (LPM) are configured.

HARDWARE SERVICES

DECservice pricing has been used for all Digital hardware components.

SOFTWARE

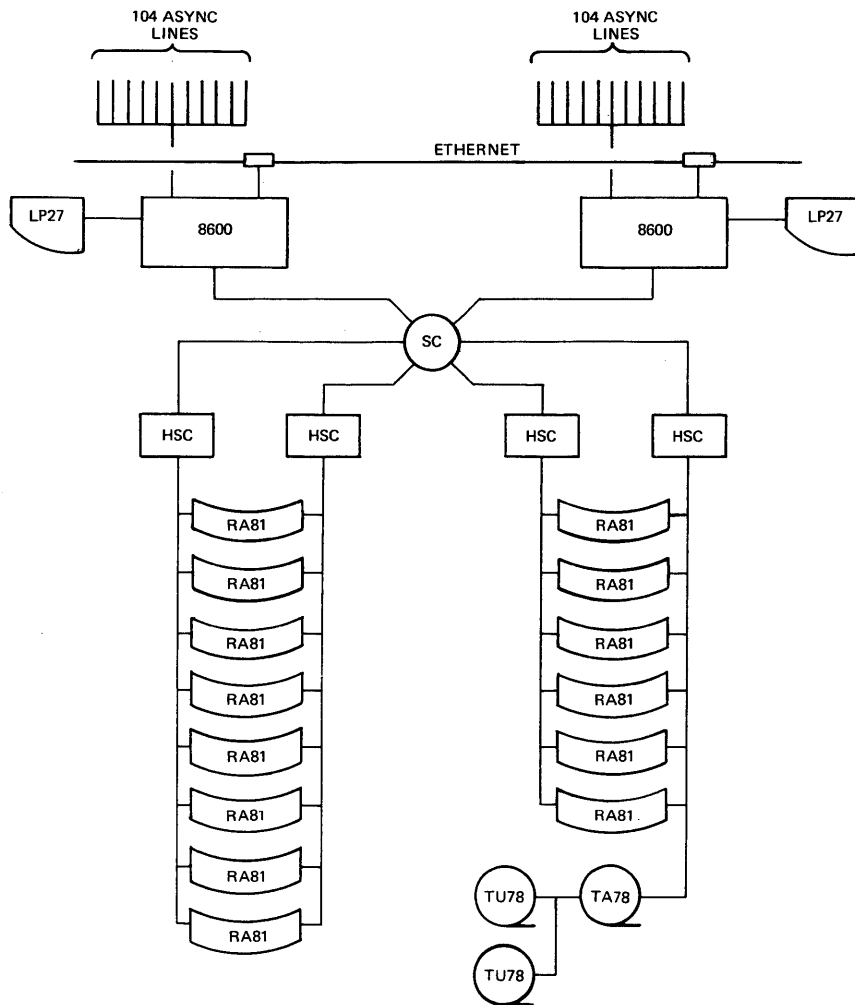
Software has been included to provide a reasonable interactive computing environment with communications, relational data management, database query, transaction processing and two languages (FORTRAN and COBOL).

SOFTWARE SERVICES

The VAXcluster includes full DECsupport and System Start Service (Level III).

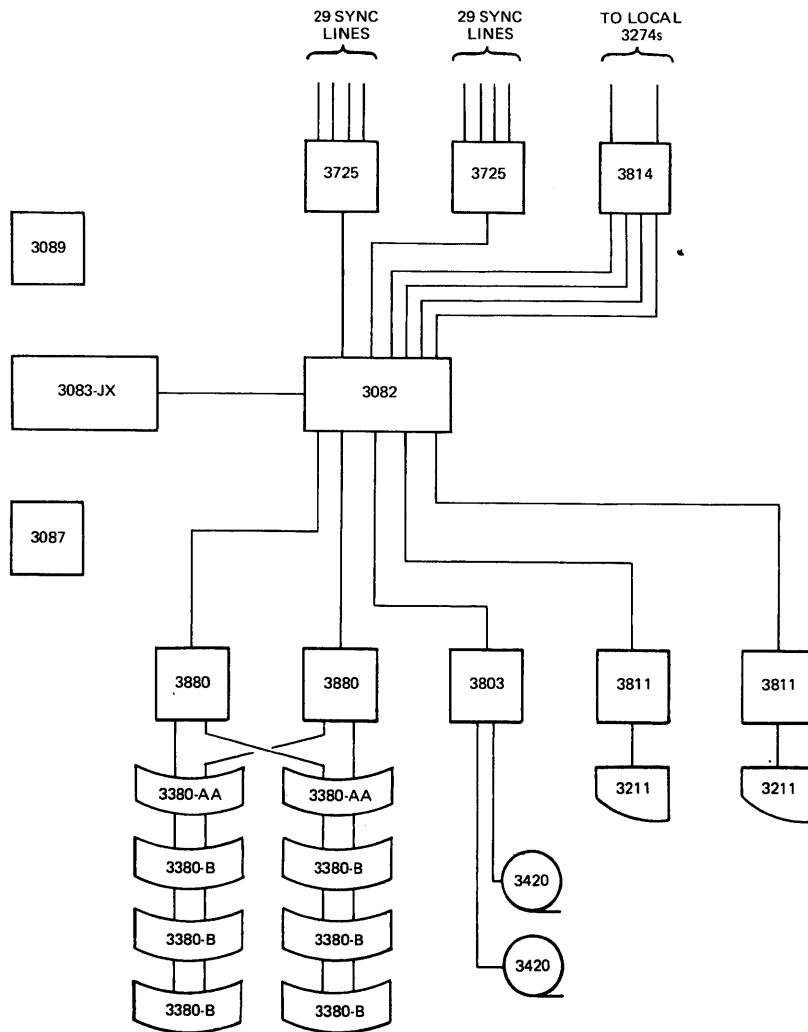
FOR INTERNAL USE ONLY

VAXcluster - Year 1



FOR INTERNAL USE ONLY

IBM Mainframe - Year 1



FOR INTERNAL USE ONLY

>>> VAXcluster - Year 1 <<<<

| Part Number | Description | Qty | Purchase Price | Price Extension | Monthly Maint | War Mon | Maint Ext | 1st Year Maint | kBTU | kVA | Sq Ft |
|-------------|--------------------------------|-----|----------------|-----------------|---------------|---------|-----------|----------------|-------|------|-------|
| B61CB-AE | Vaxcluster SBB & 12MB | 1 | \$500,000 | \$500,000 | \$1,975 | 3 | \$1,975 | \$17,775 | 25.8 | 8.2 | 25.2 |
| B61CB-AP | VAXcluster SBB Upgrade & 12MB | 1 | \$450,000 | \$450,000 | \$1,776 | 3 | \$1,776 | \$15,984 | 22.0 | 6.5 | 15.5 |
| | B600 List Price | | | \$950,000 | | | | | | | |
| | Less 6% E/U Disc | | | (\$57,000) | | | | | | | |
| | B600 Net Price | | | \$893,000 | | | \$3,751 | \$33,759 | 47.8 | 14.7 | 40.7 |
| VT220-B | Terminal | 512 | \$1,180 | \$604,160 | \$7 | 3 | \$3,584 | \$32,256 | | | |
| | Less 500+ E/U Term Disc | 512 | (\$355) | (\$181,760) | | | | | | | |
| | Terminals Net Price | | | \$422,400 | | | \$3,584 | \$32,256 | | | |
| DF03-AA | 1200/300 Baud Sync/Async Modem | 48 | \$745 | \$35,760 | \$17 | 3 | \$816 | \$7,344 | | | |
| DFM04-AB | 4 Line Stat Mux w/4800 BPS Mdm | 24 | \$4,525 | \$108,600 | \$42 | 3 | \$1,008 | \$9,072 | | | |
| DFM08-AB | 8 Line Stat Mux w/4800 BPS Mdm | 12 | \$5,200 | \$62,400 | \$48 | 3 | \$576 | \$5,184 | | | |
| DFM16-AB | 16 Line Stat Mux w/4800 BPS Md | 3 | \$6,650 | \$19,950 | \$60 | 3 | \$180 | \$1,620 | | | |
| | Modems & Mpxs List Price | | | \$226,710 | | | | | | | |
| | Less 17% E/U Spares Discount | | | (\$38,541) | | | | | | | |
| | Modems & Mpxs Net Price | | | \$188,169 | | | \$2,580 | \$23,220 | | | |
| LA120-DA | Hardcopy Terminal | 2 | \$2,800 | \$5,600 | \$40 | 3 | \$80 | \$720 | | | |
| HSC50-AA | Intelligent I/O Server | 3 | \$34,500 | \$103,500 | \$113 | 3 | \$339 | \$3,051 | 7.2 | 3.3 | 15.9 |
| HSC5X-BA | Disk Data Channel | 21 | \$8,100 | \$170,100 | \$30 | 3 | \$630 | \$5,670 | 14.7 | 6.3 | 0.0 |
| HSC5X-EA | Power Supply | 4 | \$3,000 | \$12,000 | \$30 | 3 | \$120 | \$1,080 | 0.8 | 0.4 | 0.0 |
| RAB1-EA | 1.368GB Fixed Disk | 14 | \$50,000 | \$700,000 | \$321 | 3 | \$4,494 | \$40,446 | 92.4 | 33.6 | 74.2 |
| TA78-BF | 1600/6250 BPI Tape - Master | 1 | \$52,000 | \$52,000 | \$405 | 3 | \$405 | \$3,645 | 6.7 | 2.4 | 5.5 |
| TU78-AF | 1600/6250 BPI Tape - Slave | 2 | \$25,500 | \$51,000 | \$202 | 3 | \$404 | \$3,636 | 10.2 | 3.8 | 11.0 |
| LP27-VA | 1200 LPM Printer (64 Char Set) | 2 | \$27,990 | \$55,980 | \$286 | 3 | \$572 | \$5,148 | 7.6 | 1.0 | 18.4 |
| CK-DMZ32-AY | 24 Line Dist Panel w/Mdm Ctl | 8 | \$3,985 | \$31,880 | | | | | | | |
| DECSA-DA | 32 Line ETHERNET Term Server | 13 | \$20,000 | \$260,000 | \$401 | 3 | \$5,213 | \$46,917 | | | |
| H4000 | ETHERNET Transceiver | 15 | \$300 | \$4,500 | \$5 | 3 | \$75 | \$675 | | | |
| | Other H/W List Price | | | \$1,446,560 | | | | | | | |
| | Less 9% E/U Disc | | | (\$130,190) | | | | | | | |
| | Other H/W Net Price | | | \$1,316,370 | | | \$12,332 | \$110,988 | 139.6 | 50.8 | 125.0 |
| | Total Net H/W | | | \$2,819,939 | | | \$22,247 | \$200,223 | 187.4 | 65.5 | 165.7 |
| QK354-UZ | RDB Lic w/War | 1 | \$13,500 | \$13,500 | | | | | | | |
| QK898-UZ | DTR Lic w/War | 1 | \$9,900 | \$9,900 | | | | | | | |
| QK897-UZ | CDD Lic w/War | 1 | \$1,980 | \$1,980 | | | | | | | |
| QK079-UZ | ACMS Lic w/War | 1 | \$14,850 | \$14,850 | | | | | | | |
| QK706-UZ | TDMS Lic w/War | 1 | \$4,125 | \$4,125 | | | | | | | |
| QK099-UZ | COROL Lic w/War | 1 | \$11,950 | \$11,950 | | | | | | | |
| QK100-UZ | FORTRAN Lic w/War | 1 | \$7,755 | \$7,755 | | | | | | | |
| | Term Serv Lic w/War [Est] | 1 | \$895 | \$895 | | | | | | | |
| QK354-QZ | RDB VAXcluster Lic | 1 | \$8,100 | \$8,100 | | | | | | | |
| QK898-QZ | DTR VAXcluster Lic | 1 | \$5,940 | \$5,940 | | | | | | | |
| QK897-QZ | CDD VAXcluster Lic | 1 | \$1,190 | \$1,190 | | | | | | | |
| QK079-QZ | ACMS VAXcluster Lic | 1 | \$8,910 | \$8,910 | | | | | | | |
| QK706-QZ | TDMS VAXcluster Lic | 1 | \$2,475 | \$2,475 | | | | | | | |
| QK099-QZ | COROL VAXcluster Lic | 1 | \$7,170 | \$7,170 | | | | | | | |
| QK100-QZ | FORTRAN VAXcluster Lic | 1 | \$4,650 | \$4,650 | | | | | | | |
| | Term Serv VAXcluster Lic [Est] | 1 | \$495 | \$495 | | | | | | | |
| | S/W Lic List Price | | | \$103,885 | | | | | | | |
| | Less 25% SOFTPAK Disc | | | (\$25,971) | | | | | | | |
| | S/W Lic After SOFTPAK Disc | | | \$77,914 | | | | | | | |
| | Less 9% E/U Disc | | | (\$7,012) | | | | | | | |
| | S/W Lic Net Price | | | \$70,902 | | | | | | | |
| QK025-BM | SSP Lvl 3 - VAXcluster Base | 1 | \$45,000 | \$45,000 | | | | | | | |
| QK025-BZ | SSP Lvl 3 - VAXcluster Node | 2 | \$5,000 | \$10,000 | | | | | | | |
| QK025-9M | DPHC - VAXcluster Base | 1 | \$0 | \$0 | \$1,800 | 0 | \$1,800 | | | | |
| QK025-9Z | DPHC - VAXcluster Node | 2 | \$0 | \$0 | \$350 | 0 | \$700 | | | | |
| | S/W Maintenance | | | | | | \$2,500 | \$55,000 | | | |

FOR INTERNAL USE ONLY

>>> VAXcluster - Year 2 <<<<

| Part Number | Description | Qty | Purchase Price | Price Extension | Monthly Maint | War Mon | Maint Ext | 1st Year Maint | kBTU | kVA | Sq Ft |
|-------------|--------------------------------|-----|----------------|-----------------|---------------|---------|-----------|----------------|-------|-------|-------|
| 861CB-AP | VAXcluster SBB Upgrade & 12MB | 1 | \$450,000 | \$450,000 | \$1,776 | 3 | \$1,776 | \$15,984 | 22.0 | 6.5 | 15.5 |
| MS86-BB | 4MB Memory Array X 3 | 1 | \$72,000 | \$72,000 | \$300 | 3 | \$300 | \$2,700 | | | |
| | 8600 List Price | | | \$522,000 | | | | | | | |
| | Less 5% E/U Disc | | | (\$26,100) | | | | | | | |
| | 8600 Net Price | | | \$495,900 | | | \$2,076 | \$18,684 | 22.0 | 6.5 | 15.5 |
| VT220-B | Terminal | 256 | \$1,180 | \$302,080 | \$7 | 3 | \$1,792 | \$16,128 | | | |
| | Less 200-499 E/U Term Disc | 256 | (\$320) | (\$81,920) | | | | | | | |
| | Terminals Net Price | | | \$220,160 | | | \$1,792 | \$16,128 | | | |
| DF03-AA | 1200/300 Baud Sync/Async Modem | 32 | \$745 | \$23,840 | \$17 | 3 | \$544 | \$4,896 | | | |
| DFM04-AB | 4 Line Stat Mux w/4800 BPS Mdm | 16 | \$4,525 | \$72,400 | \$42 | 3 | \$672 | \$6,048 | | | |
| DFM08-AB | 8 Line Stat Mux w/4800 BPS Mdm | 8 | \$5,200 | \$41,600 | \$48 | 3 | \$384 | \$3,456 | | | |
| DFM16-AB | 16 Line Stat Mux w/4800 BPS Md | 2 | \$6,650 | \$13,300 | \$60 | 3 | \$120 | \$1,080 | | | |
| | Modems & Mpxs List Price | | | \$151,140 | | | | | | | |
| | Less 17% E/U Spares Discount | | | (\$25,694) | | | | | | | |
| | Modems & Mpxs Net Price | | | \$125,446 | | | \$1,720 | \$15,480 | | | |
| LA120-DA | Hardcopy Terminal | 1 | \$2,800 | \$2,800 | \$40 | 3 | \$40 | \$360 | | | |
| HSC50-AA | Intelligent I/O Server | 1 | \$34,500 | \$34,500 | \$113 | 3 | \$113 | \$1,017 | 2.4 | 1.1 | 5.3 |
| HSC5X-BA | Disk Data Channel | 2 | \$8,100 | \$16,200 | \$30 | 3 | \$60 | \$540 | 1.4 | 0.6 | 0.0 |
| HSC5X-EA | Power Supply | 4 | \$3,000 | \$12,000 | \$30 | 3 | \$120 | \$1,080 | 0.8 | 0.4 | 0.0 |
| RAB1-EA | 1.368GB Fixed Disk | 2 | \$50,000 | \$100,000 | \$321 | 3 | \$642 | \$5,778 | 13.2 | 4.8 | 10.6 |
| LP27-VA | 1200 LPM Printer (64 Char Set) | 1 | \$27,990 | \$27,990 | \$286 | 3 | \$286 | \$2,574 | 3.8 | 0.5 | 9.2 |
| CK-DN732-AY | 24 Line Dist Panel w/Mdm Ctl | 4 | \$3,985 | \$15,940 | \$0 | | | | | | |
| DECSA-DA | 32 Line ETHERNET Term Server | 5 | \$20,000 | \$100,000 | \$401 | 3 | \$2,005 | \$18,045 | | | |
| H4000 | ETHERNET Transceiver | 6 | \$300 | \$1,800 | \$5 | 3 | \$30 | \$270 | | | |
| | Other H/W List Price | | | \$311,230 | | | | | | | |
| | Less 0% E/U Disc | | | \$0 | | | | | | | |
| | Other H/W Net Price | | | \$311,230 | | | \$3,296 | \$29,664 | 21.6 | 7.4 | 25.1 |
| | Total Net H/W | | | \$1,152,736 | | | \$8,884 | \$79,956 | 43.6 | 13.9 | 40.6 |
| | | | | ===== | | | ===== | ===== | ===== | ===== | ===== |
| QK354-QZ | RDB VAXcluster Lic | 1 | \$8,100 | \$8,100 | | | | | | | |
| QK898-QZ | DTR VAXcluster Lic | 1 | \$5,940 | \$5,940 | | | | | | | |
| QK897-QZ | CDD VAXcluster Lic | 1 | \$1,190 | \$1,190 | | | | | | | |
| QK079-QZ | ACMS VAXcluster Lic | 1 | \$8,910 | \$8,910 | | | | | | | |
| QK706-QZ | TDMS VAXcluster Lic | 1 | \$2,475 | \$2,475 | | | | | | | |
| QK099-QZ | COBOL VAXcluster Lic | 1 | \$7,170 | \$7,170 | | | | | | | |
| QK100-QZ | FORTRAN VAXcluster Lic | 1 | \$4,650 | \$4,650 | | | | | | | |
| | Term Serv VAXcluster Lic [Est] | 1 | \$495 | \$495 | | | | | | | |
| | S/W Lic List Price | | | \$38,930 | | | | | | | |
| | Less 25% SOFTPAK Disc | | | (\$9,733) | | | | | | | |
| | S/W Lic After SOFTPAK Disc | | | \$29,198 | | | | | | | |
| | Less 0% E/U Disc | | | \$0 | | | | | | | |
| | S/W Lic Net Price | | | \$29,198 | | | | | | | |
| | | | | ===== | | | | | | | |
| QK025-9Z | DPMC - VAXcluster Node | 1 | | | \$350 | 0 | \$350 | \$4,200 | | | |
| | S/W Maintenance | | | | | | \$350 | \$4,200 | | | |
| | | | | | | | ===== | ===== | | | |

FOR INTERNAL USE ONLY

>>> VAXcluster - Year 3 <<<<

| Part Number | Description | Qty | Purchase Price | Price Extension | Monthly Maint | War Mon | Maint Ext | 1st Year Maint | kBTU | kVA | Sq Ft |
|-------------|--------------------------------|-----|----------------|-----------------|---------------|---------|-----------|----------------|------|------|-------|
| 861CB-AP | VAXcluster SBB Upgrade & 12MB | 1 | \$450,000 | \$450,000 | \$1,776 | 3 | \$1,776 | \$15,984 | 22.0 | 6.5 | 15.5 |
| MS86-BA | 4MB Memory Array | 1 | \$28,800 | \$28,800 | \$100 | 3 | \$100 | \$900 | | | |
| | 8600 List Price | | | \$478,800 | | | | | | | |
| | Less 0% E/U Disc | | | \$0 | | | | | | | |
| | 8600 Net Price | | | \$478,800 | | | \$1,876 | \$16,884 | 22.0 | 6.5 | 15.5 |
| VT220-B | Terminal | 256 | \$1,180 | \$302,080 | \$7 | 3 | \$1,792 | \$16,128 | | | |
| | Less 200-499 E/U Term Disc | 256 | (\$320) | (\$81,920) | | | | | | | |
| | Terminals Net Price | | | \$220,160 | | | \$1,792 | \$16,128 | | | |
| DF03-AA | 1200/300 Baud Sync/Async Modem | 32 | \$745 | \$23,840 | \$17 | 3 | \$544 | \$4,896 | | | |
| DFM04-AB | 4 Line Stat Mux w/4800 BPS Mdm | 16 | \$4,525 | \$72,400 | \$42 | 3 | \$672 | \$6,048 | | | |
| DFM08-AB | 8 Line Stat Mux w/4800 BPS Mdm | 8 | \$5,200 | \$41,600 | \$48 | 3 | \$384 | \$3,456 | | | |
| DFM16-AB | 16 Line Stat Mux w/4800 BPS Md | 2 | \$6,650 | \$13,300 | \$60 | 3 | \$120 | \$1,080 | | | |
| | Modems & Mpxs List Price | | | \$151,140 | | | | | | | |
| | Less 17% E/U Spares Discount | | | (\$25,694) | | | | | | | |
| | Modems & Mpxs Net Price | | | \$125,446 | | | \$1,720 | \$15,480 | | | |
| SC008-AD | 8 Node Star Coupler Upgrade | 1 | \$6,050 | \$6,050 | \$26 | 3 | \$26 | \$234 | | | |
| LA120-DA | Hardcopy Terminal | 1 | \$2,800 | \$2,800 | \$40 | 3 | \$40 | \$360 | | | |
| HSC5X-BA | Disk Data Channel | 3 | \$8,100 | \$24,300 | \$30 | 3 | \$90 | \$810 | 2.1 | 0.9 | 0.0 |
| HSC5X-EA | Power Supply | 1 | \$3,000 | \$3,000 | \$30 | 3 | \$30 | \$270 | 0.2 | 0.1 | 0.0 |
| RAB1-EA | 1.368GB Fixed Disk | 2 | \$50,000 | \$100,000 | \$321 | 3 | \$642 | \$5,778 | 13.2 | 4.8 | 10.6 |
| LP27-VA | 1200 LPM Printer (64 Char Set) | 1 | \$27,990 | \$27,990 | \$286 | 3 | \$286 | \$2,574 | 3.8 | 0.5 | 9.2 |
| CK-DMZ32-AY | 24 Line Dist Panel w/Mdm Ctl | 4 | \$3,985 | \$15,940 | | | | | | | |
| DECSA-DA | 32 Line ETHERNET Term Server | 5 | \$20,000 | \$100,000 | \$401 | 3 | \$2,005 | \$18,045 | | | |
| H4000 | ETHERNET Transceiver | 6 | \$300 | \$1,800 | \$5 | 3 | \$30 | \$270 | | | |
| | Other H/W List Price | | | \$281,880 | | | | | | | |
| | Less 0% E/U Disc | | | \$0 | | | | | | | |
| | Other H/W Net Price | | | \$281,880 | | | \$3,149 | \$28,341 | 19.3 | 6.3 | 19.8 |
| | Total Net H/W | | | \$1,106,286 | | | \$8,537 | \$76,833 | 41.3 | 12.8 | 35.3 |
| QK354-QZ | RDB VAXcluster Lic | 1 | \$8,100 | \$8,100 | | | | | | | |
| QK898-QZ | DTR VAXcluster Lic | 1 | \$5,940 | \$5,940 | | | | | | | |
| QK897-QZ | CDD VAXcluster Lic | 1 | \$1,190 | \$1,190 | | | | | | | |
| QK079-QZ | ACMS VAXcluster Lic | 1 | \$8,910 | \$8,910 | | | | | | | |
| QK706-QZ | TDMS VAXcluster Lic | 1 | \$2,475 | \$2,475 | | | | | | | |
| QK099-QZ | COBOL VAXcluster Lic | 1 | \$7,170 | \$7,170 | | | | | | | |
| BK100-QZ | FORTRAN VAXcluster Lic | 1 | \$4,650 | \$4,650 | | | | | | | |
| | Term Serv VAXcluster Lic [Est] | 1 | \$495 | \$495 | | | | | | | |
| | S/W Lic List Price | | | \$38,930 | | | | | | | |
| | Less 25% SOFTPAK Disc | | | (\$9,733) | | | | | | | |
| | S/W Lic After SOFTPAK Disc | | | \$29,198 | | | | | | | |
| | Less 0% E/U Disc | | | \$0 | | | | | | | |
| | S/W Lic Net Price | | | \$29,198 | | | | | | | |
| BK025-9Z | DPMC - VAXcluster Node | 1 | | | \$350 | 0 | \$350 | \$4,200 | | | |
| | S/W Maintenance | | | | | | \$350 | \$4,200 | | | |

FOR INTERNAL USE ONLY

>>>> VAXcluster - Year 4 <<<<

| Part Number | Description | Qty | Purchase Price | Price Extension | Monthly Maint | War Mon | Maint Ext | 1st Year Maint | kBTU | kVA | Sq Ft |
|-------------|--------------------------------|-----|----------------|-----------------|---------------|---------|-----------|----------------|------|------|-------|
| 861CB-AP | VAXcluster SBB Upgrade & 12MB | 2 | \$450,000 | \$900,000 | \$1,776 | 3 | \$3,552 | \$31,968 | 44.0 | 13.0 | 31.0 |
| MS86-BA | 4MB Memory Array | 2 | \$28,800 | \$57,600 | \$100 | 3 | \$200 | \$1,800 | | | |
| | 8600 List Price | | | \$957,600 | | | | | | | |
| | Less 6% E/U Disc | | | (\$57,456) | | | | | | | |
| | 8600 Net Price | | | \$900,144 | | | \$3,752 | \$33,768 | 44.0 | 13.0 | 31.0 |
| VT220-B | Terminal | 512 | \$1,180 | \$604,160 | \$7 | 3 | \$3,584 | \$32,256 | | | |
| | Less 500+ E/U Term Disc | 512 | (\$355) | (\$181,760) | | | | | | | |
| | Terminals Net Price | | | \$422,400 | | | \$3,584 | \$32,256 | | | |
| DF03-AA | 1200/300 Baud Sync/Async Modem | 64 | \$745 | \$47,680 | \$17 | 3 | \$1,088 | \$9,792 | | | |
| DFM04-AB | 4 Line Stat Mux w/4800 BPS Mdm | 32 | \$4,525 | \$144,800 | \$42 | 3 | \$1,344 | \$12,096 | | | |
| DFM08-AB | 8 Line Stat Mux w/4800 BPS Mdm | 16 | \$5,200 | \$83,200 | \$48 | 3 | \$768 | \$6,912 | | | |
| DFM16-AB | 16 Line Stat Mux w/4800 BPS Md | 4 | \$6,650 | \$26,600 | \$60 | 3 | \$240 | \$2,160 | | | |
| | Modems & Mpxs List Price | | | \$302,280 | | | | | | | |
| | Less 17% E/U Spares Discount | | | (\$51,388) | | | | | | | |
| | Modems & Mpxs Net Price | | | \$250,892 | | | \$3,440 | \$30,960 | | | |
| LA120-DA | Hardcopy Terminal | 2 | \$2,800 | \$5,600 | \$40 | 3 | \$80 | \$720 | | | |
| HSC50-AA | Intelligent I/O Server | 1 | \$34,500 | \$34,500 | \$113 | 3 | \$113 | \$1,017 | 2.4 | 1.1 | 5.3 |
| HSC5X-BA | Disk Data Channel | 6 | \$8,100 | \$48,600 | \$30 | 3 | \$180 | \$1,620 | 4.2 | 1.8 | 0.0 |
| HSC5X-EA | Power Supply | 1 | \$3,000 | \$3,000 | \$30 | 3 | \$30 | \$270 | 0.2 | 0.1 | 0.0 |
| RA81-EA | 1.368GB Fixed Disk | 4 | \$50,000 | \$200,000 | \$321 | 3 | \$1,284 | \$11,556 | 26.4 | 9.6 | 21.2 |
| TU78-AF | 1600/6250 BPI Tape - Slave | 1 | \$25,500 | \$25,500 | \$202 | 3 | \$202 | \$1,818 | 5.1 | 1.9 | 5.5 |
| LP27-VA | 1200 LPM Printer (64 Char Set) | 2 | \$27,990 | \$55,980 | \$286 | 3 | \$372 | \$5,148 | 7.6 | 1.0 | 18.4 |
| CK-DMZ32-AY | 24 Line Dist Panel w/Mdm Ctl | 8 | \$3,985 | \$31,880 | | | | | | | |
| DECSA-DA | 32 Line ETHERNET Term Server | 10 | \$20,000 | \$200,000 | \$401 | 3 | \$4,010 | \$36,090 | | | |
| H4000 | ETHERNET Transceiver | 12 | \$300 | \$3,600 | \$5 | 3 | \$60 | \$540 | | | |
| | Other H/W List Price | | | \$608,660 | | | | | | | |
| | Less 5% E/U Disc | | | (\$30,433) | | | | | | | |
| | Other H/W Net Price | | | \$578,227 | | | \$6,531 | \$58,779 | 45.9 | 15.5 | 50.4 |
| | Total Net H/W | | | \$2,151,663 | | | \$17,307 | \$155,763 | 89.9 | 28.5 | 81.4 |
| QK354-QZ | RDB VAXcluster Lic | 2 | \$8,100 | \$16,200 | | | | | | | |
| QK898-QZ | DTR VAXcluster Lic | 2 | \$5,940 | \$11,880 | | | | | | | |
| QK897-QZ | CDD VAXcluster Lic | 2 | \$1,190 | \$2,380 | | | | | | | |
| QK079-QZ | ACMS VAXcluster Lic | 2 | \$8,910 | \$17,820 | | | | | | | |
| QK706-QZ | TDMS VAXcluster Lic | 2 | \$2,475 | \$4,950 | | | | | | | |
| QK099-QZ | COBOL VAXcluster Lic | 2 | \$7,170 | \$14,340 | | | | | | | |
| QK100-QZ | FORTRAN VAXcluster Lic | 2 | \$4,650 | \$9,300 | | | | | | | |
| | Term Serv VAXcluster Lic [Est] | 2 | \$495 | \$990 | | | | | | | |
| | S/W Lic List Price | | | \$77,860 | | | | | | | |
| | Less 25% SOFTPAK Disc | | | (\$19,465) | | | | | | | |
| | S/W Lic After SOFTPAK Disc | | | \$58,395 | | | | | | | |
| | Less 5% E/U Disc | | | (\$2,920) | | | | | | | |
| | S/W Lic Net Price | | | \$55,475 | | | | | | | |
| QK025-9Z | DPMC - VAXcluster Node | 2 | | | \$350 | 0 | \$700 | \$8,400 | | | |
| | S/W Maintenance | | | | | | \$700 | \$8,400 | | | |

FOR INTERNAL USE ONLY

>>> VAXcluster - Year 5 <<<<

| Part Number | Description | Qty | Purchase Price | Price Extension | Monthly Maint | War Mon | Maint Ext | 1st Year Maint | kBTU | kVA | Sq Ft |
|-------------|--------------------------------|-----|----------------|-----------------|---------------|---------|-----------|----------------|-------|-------|-------|
| B61CB-AP | VAXcluster SBB Upgrade & 12MB | 2 | \$450,000 | \$900,000 | \$1,776 | 3 | \$3,552 | \$31,968 | 44.0 | 13.0 | 31.0 |
| MSB6-BB | 4MB Memory Array X 3 | 1 | \$72,000 | \$72,000 | \$300 | 3 | \$300 | \$2,700 | | | |
| | 8600 List Price | | | \$972,000 | | | | | | | |
| | Less 6% E/U Disc | | | (\$58,320) | | | | | | | |
| | 8600 Net Price | | | \$913,680 | | | \$3,852 | \$34,668 | 44.0 | 13.0 | 31.0 |
| VT220-B | Terminal | 512 | \$1,180 | \$604,160 | \$7 | 3 | \$3,584 | \$32,256 | | | |
| | Less 500+ E/U Term Disc | 512 | (\$355) | (\$181,760) | | | | | | | |
| | Terminals Net Price | | | \$422,400 | | | \$3,584 | \$32,256 | | | |
| DF03-AA | 1200/300 Baud Sync/Async Modem | 64 | \$745 | \$47,680 | \$17 | 3 | \$1,088 | \$9,792 | | | |
| DFM04-AB | 4 Line Stat Mux w/4800 BPS Mdm | 32 | \$4,525 | \$144,800 | \$42 | 3 | \$1,344 | \$12,096 | | | |
| DFM08-AB | 8 Line Stat Mux w/4800 BPS Mdm | 16 | \$5,200 | \$83,200 | \$48 | 3 | \$768 | \$6,912 | | | |
| DFM16-AB | 16 Line Stat Mux w/4800 BPS Md | 4 | \$6,650 | \$26,600 | \$60 | 3 | \$240 | \$2,160 | | | |
| | Modems & Mpxs List Price | | | \$302,280 | | | | | | | |
| | Less 17% E/U Spares Discount | | | (\$51,388) | | | | | | | |
| | Modems & Mpxs Net Price | | | \$250,892 | | | \$3,440 | \$30,960 | | | |
| LA120-DA | Hardcopy Terminal | 2 | \$2,800 | \$5,600 | \$40 | 3 | \$80 | \$720 | | | |
| HSC50-AA | Intelligent I/O Server | 2 | \$34,500 | \$69,000 | \$113 | 3 | \$226 | \$2,034 | 4.8 | 2.2 | 10.6 |
| HSC5X-BA | Disk Data Channel | 11 | \$8,100 | \$89,100 | \$30 | 3 | \$330 | \$2,970 | 7.7 | 3.3 | 0.0 |
| HSC5X-EA | Power Supply | 2 | \$3,000 | \$6,000 | \$30 | 3 | \$60 | \$540 | 0.4 | 0.2 | 0.0 |
| RA81-EA | 1.368GB Fixed Disk | 7 | \$50,000 | \$350,000 | \$321 | 3 | \$2,247 | \$20,223 | 46.2 | 16.8 | 37.1 |
| TA7B-BF | 1600/6250 BPI Tape - Master | 1 | \$52,000 | \$52,000 | \$405 | 3 | \$405 | \$3,645 | 6.7 | 2.4 | 5.5 |
| TU7B-AF | 1600/6250 BPI Tape - Slave | 1 | \$25,500 | \$25,500 | \$202 | 3 | \$202 | \$1,818 | 5.1 | 1.9 | 5.5 |
| LP27-VA | 1200 LPM Printer (64 Char Set) | 2 | \$27,990 | \$55,980 | \$286 | 3 | \$572 | \$5,148 | 7.6 | 1.0 | 18.4 |
| CK-DMZ32-AY | 24 Line Dist Panel w/Mdm Ctl | 8 | \$3,985 | \$31,880 | | | | | | | |
| DECSA-DA | 32 Line ETHERNET Term Server | 10 | \$20,000 | \$200,000 | \$401 | 3 | \$4,010 | \$36,090 | | | |
| H4000 | ETHERNET Transceiver | 12 | \$300 | \$3,600 | \$5 | 3 | \$60 | \$540 | | | |
| | Other H/W List Price | | | \$888,660 | | | | | | | |
| | Less 6% E/U Disc | | | (\$53,320) | | | | | | | |
| | Other H/W Net Price | | | \$835,340 | | | \$8,192 | \$73,728 | 78.5 | 27.8 | 77.1 |
| | Total Net H/W | | | \$2,422,313 | | | \$19,068 | \$171,612 | 122.5 | 40.8 | 108.1 |
| | | | | ===== | | | ===== | ===== | ===== | ===== | ===== |
| QK354-QZ | RDB VAXcluster Lic | 2 | \$8,100 | \$16,200 | | | | | | | |
| QK898-QZ | DTR VAXcluster Lic | 2 | \$5,940 | \$11,880 | | | | | | | |
| QK897-QZ | CDD VAXcluster Lic | 2 | \$1,190 | \$2,380 | | | | | | | |
| QK079-QZ | ACMS VAXcluster Lic | 2 | \$8,910 | \$17,820 | | | | | | | |
| QK706-QZ | TDMS VAXcluster Lic | 2 | \$2,475 | \$4,950 | | | | | | | |
| QK099-QZ | COBOL VAXcluster Lic | 2 | \$7,170 | \$14,340 | | | | | | | |
| QK100-QZ | FORTRAN VAXcluster Lic | 2 | \$4,650 | \$9,300 | | | | | | | |
| | Term Serv VAXcluster Lic [Est] | 2 | \$495 | \$990 | | | | | | | |
| | S/W Lic List Price | | | \$77,860 | | | | | | | |
| | Less 25% SOFTPAK Disc | | | (\$19,465) | | | | | | | |
| | S/W Lic After SOFTPAK Disc | | | \$58,395 | | | | | | | |
| | Less 6% E/U Disc | | | (\$3,504) | | | | | | | |
| | S/W Lic Net Price | | | \$54,891 | | | | | | | |
| | | | | ===== | | | | | | | |
| QK025-9Z | DPMC - VAXcluster Node | 2 | | | \$350 | 0 | \$700 | \$8,400 | | | |
| | S/W Maintenance | | | | | | \$700 | \$8,400 | | | |
| | | | | | | | ===== | ===== | | | |

FOR INTERNAL USE ONLY

>>> IBM Mainframe - Year 1 <<<

| Part Number | Description | Qty | Purchase Price | Price Extension | Monthly Maint | War Mon | Maint Ext | 1st Year Maint | kBTU | kVA | Sq Ft |
|---------------------------------------|---------------------------------|-----|----------------|-----------------|---------------|---------|-----------|----------------|----------|------|-------|
| 3083-JX2 | CPU, 24MB, & 8 Channels | 1 | \$2,030,000 | \$2,030,000 | \$3,850 | 12 | \$3,850 | \$0 | 50.4 | 11.5 | 39.7 |
| 3083-1545 | Channel Group 1st Add'l B | 1 | \$80,000 | \$80,000 | \$95 | 12 | \$95 | \$0 | 1.4 | 0.5 | 0.0 |
| 3082-X16 | CPU Controller for 16 Channels | 1 | \$195,000 | \$195,000 | \$785 | 12 | \$785 | \$0 | 7.5 | 2.4 | 24.4 |
| 3089-001 | Power Unit | 1 | \$38,000 | \$38,000 | \$70 | 3 | \$70 | \$630 | 21.8 | 0.0 | 14.3 |
| 3087-002 | Coolant Dist Unit (to Air) | 1 | \$72,000 | \$72,000 | \$65 | 3 | \$65 | \$585 | 0.0 | 5.3 | 17.4 |
| 3278-4641 | Operator's Console Keyboard | 1 | \$909 | \$909 | \$6 | 3 | \$6 | \$50 | | | |
| 3278-A02 | Display Station | 1 | \$2,505 | \$2,505 | \$19 | 3 | \$19 | \$167 | | | |
| 3880-D23 | Storage Control w/8MB Cache | 2 | \$143,750 | \$287,500 | \$575 | 3 | \$1,150 | \$10,350 | 12.4 | 3.8 | 19.8 |
| 3880-8170 | 2-Channel Switch Pair | 2 | \$6,225 | \$12,450 | \$11 | 3 | \$22 | \$198 | | | |
| 3380-AA4 | 2.52GB Fixed Disk w/2 Ctlr | 2 | \$88,780 | \$177,560 | \$325 | 3 | \$650 | \$5,850 | 12.0 | 4.8 | 19.8 |
| 3380-B04 | 2.52GB Fixed Disk | 6 | \$64,440 | \$386,640 | \$240 | 3 | \$1,440 | \$12,960 | 30.6 | 13.2 | 53.4 |
| 3803-002 | Tape Controller | 1 | \$27,550 | \$27,550 | \$186 | 3 | \$186 | \$1,674 | 5.7 | 1.8 | 5.8 |
| 3420-008 | 200 IPS Tape | 2 | \$19,880 | \$39,760 | \$342 | 3 | \$684 | \$6,156 | 16.8 | 5.8 | 12.4 |
| 3420-6425 | 1600/6250 BPI Density | 2 | \$2,205 | \$4,410 | \$85 | 3 | \$169 | \$1,521 | | | |
| 3811-001 | Printer Controller | 2 | \$17,685 | \$35,370 | \$123 | 3 | \$246 | \$2,214 | 11.2 | 3.8 | 11.6 |
| 3211-001 | 1500 LPM Printer (64 Char Set) | 2 | \$40,080 | \$80,160 | \$952 | 3 | \$1,904 | \$17,136 | 27.8 | 10.8 | 23.0 |
| 3216-001 | Printer Train Cartridge | 2 | \$11,600 | \$23,200 | \$206 | 3 | \$412 | \$3,708 | | | |
| 3180-110 | Display Station | 484 | \$2,295 | \$1,110,780 | \$11 | 3 | \$5,445 | \$49,005 | | | |
| | Less 25% VPA at 500-999 Lvl | 484 | (\$574) | (\$277,695) | | | | | | | |
| 3725-001 | Communications Controller | 2 | \$75,000 | \$150,000 | \$213 | 12 | \$426 | \$0 | 13.0 | 3.8 | 18.2 |
| 3725-1561 | Channel Adapter | 4 | \$6,750 | \$27,000 | \$8 | 12 | \$32 | \$0 | | | |
| 3725-4911 | EIA RS232/CCITT V.24 Interface | 16 | \$2,600 | \$41,600 | \$2 | 12 | \$32 | \$0 | | | |
| 3863-002 | 2400/1200 Baud Modem | 56 | \$2,935 | \$164,360 | \$16 | 3 | \$868 | \$7,812 | | | |
| | Less 20% VPA at 50-99 Lvl | 56 | (\$587) | (\$32,872) | | | | | | | |
| 3864-002 | 4800 Baud Modem | 15 | \$3,925 | \$58,875 | \$22 | 3 | \$330 | \$2,970 | | | |
| | Less 15% VPA at 25-49 Lvl | 15 | (\$589) | (\$8,831) | | | | | | | |
| 3276-012 | Control Unit Display Station | 28 | \$5,535 | \$154,980 | \$31 | 3 | \$868 | \$7,812 | | | |
| | Less 25% VPA at 45-69 Lvl | 28 | (\$1,384) | (\$38,745) | | | | | | | |
| 3276-3255 | Terminal Adapter 1 (3-4) | 12 | \$530 | \$6,360 | \$2 | 3 | \$18 | \$162 | | | |
| 3276-3256 | Terminal Adapter 2 (5-6) | 4 | \$589 | \$2,356 | \$2 | 3 | \$6 | \$54 | | | |
| 3276-3257 | Terminal Adapter 3 (7-8) | 4 | \$530 | \$2,120 | \$2 | 3 | \$6 | \$54 | | | |
| 3276-3701 | External Modem Interface | 12 | \$337 | \$4,044 | \$3 | 3 | \$36 | \$324 | | | |
| 3276-4623 | Keyboard | 28 | \$463 | \$12,964 | \$3 | 3 | \$84 | \$756 | | | |
| 3276-5501 | 1200 Baud Integrated Modem | 16 | \$714 | \$11,424 | \$3 | 3 | \$40 | \$360 | | | |
| 3276-6301 | Comm Feature w/Clock | 16 | \$543 | \$8,688 | \$3 | 3 | \$40 | \$360 | | | |
| 3276-6302 | Comm Feature w/o Clock | 12 | \$365 | \$4,380 | \$2 | 3 | \$24 | \$216 | | | |
| 3274-61C | Remote Term Ctlr w/16 Lines | 1 | \$7,600 | \$7,600 | \$27 | 3 | \$27 | \$243 | | | |
| 3274-41A | Local Term Ctlr w/32 Lines | 13 | \$18,230 | \$236,990 | \$58 | 3 | \$754 | \$6,786 | | | |
| | Less 9% VPA at 10-19 Lvl | 13 | (\$1,641) | (\$21,329) | | | | | | | |
| 3299-001 | Terminal Multiplexer | 52 | \$1,175 | \$61,100 | \$0 | 60 | \$0 | \$0 | | | |
| | Less 20% VPA at 60-99 Lvl | 52 | (\$235) | (\$12,220) | | | | | | | |
| 3814-A01 | 4X4 Control Unit Switch | 1 | \$47,480 | \$47,480 | \$136 | 3 | \$136 | \$1,224 | 4.8 | 1.5 | 10.8 |
| Total Net H/W | | | | \$5,214,423 | | | \$20,924 | \$141,336 | 215.4 | 69.0 | 270.6 |
| 3083-JX-SW Prog Supt Charge - Any O/S | | | 1 | \$0 | \$0 | \$1,070 | 1 | \$1,070 | \$11,770 | | |
| 5665-291 | MVS/SP JES Rel 2.1.2 | 1 | \$13,500 | \$13,500 | \$5,750 | 1 | \$5,750 | \$63,250 | | | |
| 5665-284 | MVS/XA DFP Rel 1 | 1 | \$1,485 | \$1,485 | \$572 | 1 | \$572 | \$6,292 | | | |
| 5668-949 | SMP/E | 1 | \$1,800 | \$1,800 | \$391 | 1 | \$391 | \$4,301 | | | |
| 5668-962 | Assembler H Ver 2 | 1 | \$435 | \$435 | \$152 | 1 | \$152 | \$1,672 | | | |
| 5665-285 | TSO/E Rel 2 | 1 | \$1,405 | \$1,405 | \$551 | 1 | \$551 | \$6,061 | | | |
| 5734-UT1 | TSO Data Utilities | 1 | \$5,200 | \$5,200 | \$0 | 1 | \$0 | \$0 | | | |
| 5665-280 | ACF/VTAM Ver 2 Rel 1 | 1 | \$3,745 | \$3,745 | \$1,470 | 1 | \$1,470 | \$16,170 | | | |
| 5667-124 | ACF/NCP Ver 3 for 3705/3725 | 1 | \$2,400 | \$2,400 | \$535 | 1 | \$535 | \$5,885 | | | |
| 5735-XXA | ACF/SSP Ver 2 | 1 | \$508 | \$508 | \$116 | 1 | \$116 | \$1,276 | | | |
| 5740-SM1 | Data Facility SORT Utility | 1 | \$0 | \$0 | \$249 | 1 | \$249 | \$2,739 | | | |
| 5740-XXH | RACF - Access List Security | 1 | \$0 | \$0 | \$827 | 1 | \$827 | \$9,097 | | | |
| 5668-932 | File Transfer Program V2 Rel 2 | 1 | \$1,500 | \$1,500 | \$360 | 1 | \$360 | \$3,960 | | | |
| 5740-DB2 | Database2 (DB2) Relational DB | 1 | \$15,000 | \$15,000 | \$2,850 | 1 | \$2,850 | \$31,350 | | | |
| 5668-972 | Query Mngt Facility (QMF) Rel 1 | 1 | \$6,000 | \$6,000 | \$1,055 | 1 | \$1,055 | \$11,605 | | | |
| 5668-973 | Data Extract (DXT) Rel 1 | 1 | \$3,600 | \$3,600 | \$635 | 1 | \$635 | \$6,985 | | | |
| 5740-XX1 | CICS Ver 1 Rel 6.1 | 1 | \$5,350 | \$5,350 | \$1,930 | 1 | \$1,930 | \$21,230 | | | |
| 5668-958 | VS COBOL II Compiler & Library | 1 | \$6,000 | \$6,000 | \$1,050 | 1 | \$1,050 | \$11,550 | | | |
| 5668-903 | VS FORTRAN Interactive Debug | 1 | \$1,800 | \$1,800 | \$325 | 1 | \$325 | \$3,575 | | | |
| 5748-F03 | VS FORTRAN Compiler & Library | 1 | \$699 | \$699 | \$250 | 1 | \$250 | \$2,750 | | | |
| S/W Lic Net Price | | | | \$70,427 | | | | | | | |
| S/W Maintenance | | | | | | | \$20,138 | \$221,518 | | | |

FOR INTERNAL USE ONLY

>>> IBM Mainframe - Year 2 <<<

| Part Number | Description | Qty | Purchase Price | Price Extension | Monthly Maint | War Mon | Maint Ext | 1st Year Maint | kBTU | kVA | Sq Ft |
|-------------|--------------------------------|-----|----------------|-----------------|---------------|---------|-----------|----------------|-------|-------|-------|
| 3081-KX4 | 2 CPUs, 48MB, & 16 Channels | 1 | \$1,355,000 | \$1,355,000 | \$1,815 | 12 | \$1,815 | \$0 | 2.2 | 6.9 | 0.0 |
| 3081-1550 | Channel Group Add'l 8 | 1 | \$80,000 | \$80,000 | \$95 | 12 | \$95 | \$0 | 1.4 | 0.5 | 0.0 |
| 3082-X24 | CPU Controller for 24 Channels | 1 | \$50,000 | \$50,000 | \$50 | 12 | \$50 | \$0 | 1.6 | 0.5 | 0.0 |
| 3278-4641 | Operator's Console Keyboard | 1 | \$909 | \$909 | \$6 | 3 | \$6 | \$50 | | | |
| 3278-A02 | Display Station | 1 | \$2,505 | \$2,505 | \$19 | 3 | \$19 | \$167 | | | |
| 3880-E23 | Storage Control w/16MB Cache | 2 | \$40,000 | \$80,000 | \$25 | 3 | \$50 | \$450 | 1.4 | 0.4 | 0.0 |
| 3380-AA4 | 2.52GB Fixed Disk w/2 Ctlr | 1 | \$88,780 | \$88,780 | \$325 | 3 | \$325 | \$2,925 | 6.0 | 2.4 | 9.9 |
| 3180-110 | Display Station | 228 | \$2,295 | \$523,260 | \$11 | 3 | \$2,565 | \$23,085 | | | |
| | Less 25% VPA at 500-999 Lvl | 228 | (\$574) | (\$130,815) | | | | | | | |
| 3725-001 | Communications Controller | 1 | \$75,000 | \$75,000 | \$213 | 12 | \$213 | \$0 | 6.5 | 1.9 | 9.1 |
| 3725-1561 | Channel Adapter | 2 | \$6,750 | \$13,500 | \$8 | 12 | \$16 | \$0 | | | |
| 3725-4911 | EIA RS232/CCITT V.24 Interface | 8 | \$2,600 | \$20,800 | \$2 | 12 | \$16 | \$0 | | | |
| 3725-7100 | Storage Increment | 3 | \$4,375 | \$13,125 | \$19 | 12 | \$57 | \$0 | | | |
| 3863-002 | 2400/1200 Baud Modem | 32 | \$2,935 | \$93,920 | \$16 | 3 | \$496 | \$4,464 | | | |
| | Less 20% VPA at 50-99 Lvl | 32 | (\$587) | (\$18,784) | | | | | | | |
| 3864-002 | 4800 Baud Modem | 10 | \$3,925 | \$39,250 | \$22 | 3 | \$220 | \$1,980 | | | |
| | Less 15% VPA at 25-49 Lvl | 10 | (\$589) | (\$5,888) | | | | | | | |
| 3276-012 | Control Unit Display Station | 28 | \$5,535 | \$154,980 | \$31 | 3 | \$868 | \$7,812 | | | |
| | Less 25% VPA at 45-69 Lvl | 28 | (\$1,384) | (\$38,745) | | | | | | | |
| 3276-3255 | Terminal Adapter 1 (3-4) | 12 | \$530 | \$6,360 | \$2 | 3 | \$18 | \$162 | | | |
| 3276-3256 | Terminal Adapter 2 (5-6) | 4 | \$589 | \$2,356 | \$2 | 3 | \$6 | \$54 | | | |
| 3276-3257 | Terminal Adapter 3 (7-8) | 4 | \$530 | \$2,120 | \$2 | 3 | \$6 | \$54 | | | |
| 3276-3701 | External Modem Interface | 12 | \$337 | \$4,044 | \$3 | 3 | \$36 | \$324 | | | |
| 3276-4623 | Keyboard | 28 | \$463 | \$12,964 | \$3 | 3 | \$84 | \$756 | | | |
| 3276-5501 | 1200 Baud Integrated Modem | 16 | \$714 | \$11,424 | \$3 | 3 | \$40 | \$360 | | | |
| 3276-6301 | Comm Feature w/Clock | 16 | \$543 | \$8,688 | \$3 | 3 | \$40 | \$360 | | | |
| 3276-6302 | Comm Feature w/o Clock | 12 | \$365 | \$4,380 | \$2 | 3 | \$24 | \$216 | | | |
| 3274-61C | Remote Term Ctlr w/16 Lines | 1 | \$7,600 | \$7,600 | \$27 | 3 | \$27 | \$243 | | | |
| 3274-41A | Local Term Ctlr w/32 Lines | 5 | \$18,230 | \$91,150 | \$58 | 3 | \$290 | \$2,610 | | | |
| | Less 9% VPA at 10-19 Lvl | 5 | (\$1,641) | (\$8,204) | | | | | | | |
| 3299-001 | Terminal Multiplexer | 20 | \$1,175 | \$23,500 | \$0 | 60 | \$0 | \$0 | | | |
| | Less 20% VPA at 60-99 Lvl | 8 | (\$235) | (\$1,880) | | | | | | | |
| 3814-A01 | 4X4 Control Unit Switch | 1 | \$47,480 | \$47,480 | \$136 | 3 | \$136 | \$1,224 | 4.8 | 1.5 | 10.8 |
| | Total Net H/W | | | \$2,608,780 | | | \$7,517 | \$47,295 | 23.9 | 14.1 | 29.8 |
| | | | | ===== | | | ===== | ===== | ===== | ===== | ===== |
| 3081-KX-SW | Prog Supt Charge - Any O/S | 1 | | | \$485 | 1 | \$485 | \$5,335 | | | |
| | S/W Maintenance | | | | | | \$485 | \$5,335 | | | |
| | | | | | | | ===== | ===== | | | |

FOR INTERNAL USE ONLY

>>> IBM Mainframe - Year 3 <<<

| Part Number | Description | Qty | Purchase Price | Price Extension | Monthly Maint | War Mon | Maint Ext | 1st Year Maint | kBTU | kVA | Sq Ft |
|-------------|--------------------------------|-----|----------------|-----------------|---------------|---------|-----------|----------------|-------|-------|-------|
| 3081-KX6 | 2 CPUs, 64MB, & 16 Channels | 1 | \$650,000 | \$650,000 | \$650 | 12 | \$650 | \$0 | 23.7 | 1.0 | 0.0 |
| 3380-B04 | 2.52GB Fixed Disk | 1 | \$64,440 | \$64,440 | \$240 | 3 | \$240 | \$2,160 | 5.1 | 2.2 | 8.9 |
| 3811-001 | Printer Controller | 1 | \$17,685 | \$17,685 | \$123 | 3 | \$123 | \$1,107 | 5.6 | 1.9 | 5.8 |
| 3211-001 | 1500 LPM Printer (64 Char Set) | 1 | \$40,080 | \$40,080 | \$952 | 3 | \$952 | \$8,568 | 13.9 | 5.4 | 11.5 |
| 3216-001 | Printer Train Cartridge | 1 | \$11,600 | \$11,600 | \$206 | 3 | \$206 | \$1,854 | | | |
| 3180-110 | Display Station | 228 | \$2,295 | \$523,260 | \$11 | 3 | \$2,565 | \$23,085 | | | |
| | Less 25% VPA at 500-999 Lvl | 228 | (\$574) | (\$130,815) | | | | | | | |
| 3725-4911 | EIA RS232/CCITT V.24 Interface | 9 | \$2,600 | \$23,400 | \$2 | 12 | \$18 | \$0 | | | |
| 3863-002 | 2400/1200 Baud Modem | 44 | \$2,935 | \$129,140 | \$16 | 3 | \$682 | \$6,138 | | | |
| | Less 25% VPA at 100-199 Lvl | 44 | (\$734) | (\$32,285) | | | | | | | |
| 3864-002 | 4800 Baud Modem | 13 | \$3,925 | \$51,025 | \$22 | 3 | \$286 | \$2,574 | | | |
| | Less 15% VPA at 25-49 Lvl | 13 | (\$589) | (\$7,654) | | | | | | | |
| 3276-012 | Control Unit Display Station | 28 | \$5,535 | \$154,980 | \$31 | 3 | \$868 | \$7,812 | | | |
| | Less 30% VPA at 70-124 Lvl | 28 | (\$1,661) | (\$46,494) | | | | | | | |
| 3276-3255 | Terminal Adapter 1 (3-4) | 12 | \$530 | \$6,360 | \$2 | 3 | \$18 | \$162 | | | |
| 3276-3256 | Terminal Adapter 2 (5-6) | 4 | \$589 | \$2,356 | \$2 | 3 | \$6 | \$54 | | | |
| 3276-3257 | Terminal Adapter 3 (7-8) | 4 | \$530 | \$2,120 | \$2 | 3 | \$6 | \$54 | | | |
| 3276-3701 | External Modem Interface | 12 | \$337 | \$4,044 | \$3 | 3 | \$36 | \$324 | | | |
| 3276-4623 | Keyboard | 28 | \$463 | \$12,964 | \$3 | 3 | \$84 | \$756 | | | |
| 3276-5501 | 1200 Baud Integrated Modem | 16 | \$714 | \$11,424 | \$3 | 3 | \$40 | \$360 | | | |
| 3276-6301 | Comm Feature w/Clock | 16 | \$543 | \$8,688 | \$3 | 3 | \$40 | \$360 | | | |
| 3276-6302 | Comm Feature w/o Clock | 12 | \$365 | \$4,380 | \$2 | 3 | \$24 | \$216 | | | |
| 3274-61C | Remote Term Ctlr w/16 Lines | 1 | \$7,600 | \$7,600 | \$27 | 3 | \$27 | \$243 | | | |
| 3274-41A | Local Term Ctlr w/32 Lines | 5 | \$18,230 | \$91,150 | \$58 | 3 | \$290 | \$2,610 | | | |
| | Less 9% VPA at 10-19 Lvl | 5 | (\$1,641) | (\$8,204) | | | | | | | |
| 3299-001 | Terminal Multiplexer | 20 | \$1,175 | \$23,500 | \$0 | 60 | \$0 | \$0 | | | |
| | Less 20% VPA at 60-99 Lvl | 20 | (\$235) | (\$4,700) | | | | | | | |
| | | | | \$1,610,045 | | | \$7,161 | \$58,437 | 48.3 | 10.5 | 26.2 |
| | | | | ===== | | | ===== | ===== | ===== | ===== | ===== |

FOR INTERNAL USE ONLY

>>> IBM Mainframe - Year 4 <<<

| Part Number | Description | Qty | Purchase Price | Price Extension | Monthly Maint | War Mon | Maint Ext | 1st Year Maint | kBTU | kVA | Sq Ft |
|-------------|--------------------------------|-----|----------------|-----------------|---------------|---------|-----------|----------------|-------|-------|-------|
| 3084-QXC | 4 CPUs, 132MB, & 48 Channels | 1 | \$3,245,000 | \$3,245,000 | \$5,925 | 12 | \$5,925 | \$0 | 90.1 | 29.4 | 41.0 |
| 3082-X48 | CPU Controller for 48 Channels | 1 | \$245,000 | \$245,000 | \$835 | 12 | \$835 | \$0 | 9.1 | 2.9 | 24.8 |
| 3089-001 | Power Unit | 1 | \$38,000 | \$38,000 | \$70 | 3 | \$70 | \$630 | 21.8 | 0.0 | 14.3 |
| 3087-002 | Coolant Dist Unit (to Air) | 1 | \$72,000 | \$72,000 | \$65 | 3 | \$65 | \$585 | 0.0 | 5.3 | 17.4 |
| 3278-4641 | Operator's Console Keyboard | 2 | \$909 | \$1,818 | \$6 | 3 | \$11 | \$99 | | | |
| 3278-A02 | Display Station | 2 | \$2,505 | \$5,010 | \$19 | 3 | \$37 | \$333 | | | |
| 3880-E23 | Storage Control w/16MB Cache | 2 | \$183,750 | \$367,500 | \$600 | 3 | \$1,200 | \$10,800 | 13.8 | 4.2 | 19.8 |
| 3880-8170 | 2-Channel Switch Pair | 2 | \$6,225 | \$12,450 | \$11 | 3 | \$22 | \$198 | | | |
| 3380-AA4 | 2.52GB Fixed Disk w/2 Ctlr | 1 | \$88,780 | \$88,780 | \$325 | 3 | \$325 | \$2,925 | 6.0 | 2.4 | 9.9 |
| 3380-B04 | 2.52GB Fixed Disk | 1 | \$64,440 | \$64,440 | \$240 | 3 | \$240 | \$2,160 | 5.1 | 2.2 | 8.9 |
| 3420-008 | 200 IPS Tape | 1 | \$19,880 | \$19,880 | \$342 | 3 | \$342 | \$3,078 | 8.4 | 2.9 | 6.2 |
| 3420-6425 | 1600/6250 BPI Density | 1 | \$2,205 | \$2,205 | \$85 | 3 | \$85 | \$761 | | | |
| 3811-001 | Printer Controller | 2 | \$17,685 | \$35,370 | \$123 | 3 | \$246 | \$2,214 | 11.2 | 3.8 | 11.6 |
| 3211-001 | 1500 LPM Printer (64 Char Set) | 2 | \$40,080 | \$80,160 | \$952 | 3 | \$1,904 | \$17,136 | 27.8 | 10.8 | 23.0 |
| 3216-001 | Printer Train Cartridge | 2 | \$11,600 | \$23,200 | \$206 | 3 | \$412 | \$3,708 | | | |
| 3180-110 | Display Station | 456 | \$2,295 | \$1,046,520 | \$11 | 3 | \$5,130 | \$46,170 | | | |
| | Less 25% VPA at 500-999 Lvl | 456 | (\$574) | (\$261,630) | | | | | | | |
| 3725-001 | Communications Controller | 1 | \$75,000 | \$75,000 | \$213 | 12 | \$213 | \$0 | 6.5 | 1.9 | 9.1 |
| 3725-1561 | Channel Adapter | 2 | \$6,750 | \$13,500 | \$8 | 12 | \$16 | \$0 | | | |
| 3725-4911 | EIA RS232/CCITT V.24 Interface | 17 | \$2,600 | \$44,200 | \$2 | 12 | \$34 | \$0 | | | |
| 3725-7100 | Storage Increment | 5 | \$4,375 | \$21,875 | \$19 | 12 | \$95 | \$0 | | | |
| 3863-002 | 2400/1200 Baud Modem | 68 | \$2,935 | \$199,580 | \$16 | 3 | \$1,054 | \$9,486 | | | |
| | Less 25% VPA at 100-199 Lvl | 68 | (\$734) | (\$49,895) | | | | | | | |
| 3864-002 | 4800 Baud Modem | 21 | \$3,925 | \$82,425 | \$22 | 3 | \$462 | \$4,158 | | | |
| | Less 15% VPA at 25-49 Lvl | 21 | (\$589) | (\$12,364) | | | | | | | |
| 3276-012 | Control Unit Display Station | 56 | \$5,535 | \$309,960 | \$31 | 3 | \$1,736 | \$15,624 | | | |
| | Less 30% VPA at 70-124 Lvl | 56 | (\$1,661) | (\$92,988) | | | | | | | |
| 3276-3255 | Terminal Adapter 1 (3-4) | 24 | \$530 | \$12,720 | \$2 | 3 | \$36 | \$324 | | | |
| 3276-3256 | Terminal Adapter 2 (5-6) | 8 | \$589 | \$4,712 | \$2 | 3 | \$12 | \$108 | | | |
| 3276-3257 | Terminal Adapter 3 (7-8) | 8 | \$530 | \$4,240 | \$2 | 3 | \$12 | \$108 | | | |
| 3276-3701 | External Modem Interface | 24 | \$337 | \$8,088 | \$3 | 3 | \$72 | \$648 | | | |
| 3276-4623 | Keyboard | 56 | \$463 | \$25,928 | \$3 | 3 | \$168 | \$1,512 | | | |
| 3276-5501 | 1200 Baud Integrated Modem | 32 | \$714 | \$22,848 | \$3 | 3 | \$80 | \$720 | | | |
| 3276-6301 | Comm Feature w/Clock | 32 | \$543 | \$17,376 | \$3 | 3 | \$80 | \$720 | | | |
| 3276-6302 | Comm Feature w/o Clock | 24 | \$365 | \$8,760 | \$2 | 3 | \$48 | \$432 | | | |
| 3274-61C | Remote Term Ctlr w/16 Lines | 2 | \$7,600 | \$15,200 | \$27 | 3 | \$54 | \$486 | | | |
| 3274-41A | Local Term Ctlr w/32 Lines | 10 | \$18,230 | \$182,300 | \$58 | 3 | \$580 | \$5,220 | | | |
| | Less 9% VPA at 10-19 Lvl | 10 | (\$1,641) | (\$16,407) | | | | | | | |
| 3299-001 | Terminal Multiplexer | 40 | \$1,175 | \$47,000 | \$0 | 60 | \$0 | \$0 | | | |
| | Less 20% VPA at 60-99 Lvl | 40 | (\$235) | (\$9,400) | | | | | | | |
| 3814-A01 | 4X4 Control Unit Switch | 1 | \$47,480 | \$47,480 | \$136 | 3 | \$136 | \$1,224 | 4.8 | 1.5 | 10.8 |
| | | | | \$6,047,841 | | | \$21,737 | \$131,567 | 204.6 | 67.3 | 196.8 |
| | | | | ===== | | | ===== | ===== | ===== | ===== | ===== |
| 3084-QX-SW | Prog Supt Charge - Any O/S | 1 | | | \$1,020 | 1 | \$1,020 | \$11,220 | | | |
| | S/W Maintenance | | | | | | \$1,020 | \$11,220 | | | |
| | | | | | | | ===== | ===== | | | |

FOR INTERNAL USE ONLY

>>> IBM Mainframe - Year 5 <<<

| Part Number | Description | Qty | Purchase Price | Price Extension | Monthly Maint | War Mon | Maint Ext | 1st Year Maint | kBTU | kVA | Sq Ft |
|-------------|--------------------------------|-----|----------------|-----------------|---------------|---------|-----------|----------------|-------|-------|-------|
| 3380-B04 | 2.526B Fixed Disk | 4 | \$64,440 | \$257,760 | \$240 | 3 | \$960 | \$8,640 | 20.4 | 8.8 | 35.6 |
| 3420-008 | 200 IPS Tape | 1 | \$19,880 | \$19,880 | \$342 | 3 | \$342 | \$3,078 | 8.4 | 2.9 | 6.2 |
| 3420-6425 | 1600/6250 BPI Density | 1 | \$2,205 | \$2,205 | \$85 | 3 | \$85 | \$761 | | | |
| 3811-001 | Printer Controller | 1 | \$17,685 | \$17,685 | \$123 | 3 | \$123 | \$1,107 | 5.6 | 1.9 | 5.8 |
| 3211-001 | 1500 LPM Printer (64 Char Set) | 1 | \$40,080 | \$40,080 | \$952 | 3 | \$952 | \$8,568 | 13.9 | 5.4 | 11.5 |
| 3216-001 | Printer Train Cartridge | 1 | \$11,600 | \$11,600 | \$206 | 3 | \$206 | \$1,854 | | | |
| 3180-110 | Display Station | 456 | \$2,295 | \$1,046,520 | \$11 | 3 | \$5,130 | \$46,170 | | | |
| | Less 20% VPA at 250-499 Lvl | 456 | | (\$459) | | | | | | | |
| | | | | (\$209,304) | | | | | | | |
| 3725-4771 | Line Attachment Base - Type A | 4 | \$19,000 | \$76,000 | \$16 | 12 | \$64 | \$0 | | | |
| 3725-4911 | EIA RS232/CCITT V.24 Interface | 16 | \$2,600 | \$41,600 | \$2 | 12 | \$32 | \$0 | | | |
| 3725-7100 | Storage Increment | 4 | \$4,375 | \$17,500 | \$19 | 12 | \$76 | \$0 | | | |
| 3863-002 | 2400/1200 Baud Modem | 80 | \$2,935 | \$234,800 | \$16 | 3 | \$1,240 | \$11,160 | | | |
| | Less 20% VPA at 50-99 Lvl | 80 | | (\$587) | | | | | | | |
| | | | | (\$46,960) | | | | | | | |
| 3864-002 | 4800 Baud Modem | 23 | \$3,925 | \$90,275 | \$22 | 3 | \$506 | \$4,554 | | | |
| | Less 9% VPA at 10-24 Lvl | 23 | | (\$353) | | | | | | | |
| | | | | (\$8,125) | | | | | | | |
| 3276-012 | Control Unit Display Station | 56 | \$5,535 | \$309,960 | \$31 | 3 | \$1,736 | \$15,624 | | | |
| | Less 25% VPA at 45-69 Lvl | 56 | | (\$1,384) | | | | | | | |
| | | | | (\$77,490) | | | | | | | |
| 3276-3255 | Terminal Adapter 1 (3-4) | 24 | \$530 | \$12,720 | \$2 | 3 | \$36 | \$324 | | | |
| 3276-3256 | Terminal Adapter 2 (5-6) | 8 | \$589 | \$4,712 | \$2 | 3 | \$12 | \$108 | | | |
| 3276-3257 | Terminal Adapter 3 (7-8) | 8 | \$530 | \$4,240 | \$2 | 3 | \$12 | \$108 | | | |
| 3276-3701 | External Modem Interface | 32 | \$337 | \$10,784 | \$3 | 3 | \$96 | \$864 | | | |
| 3276-4623 | Keyboard | 56 | \$463 | \$25,928 | \$3 | 3 | \$168 | \$1,512 | | | |
| 3276-5501 | 1200 Baud Integrated Modem | 32 | \$714 | \$22,848 | \$3 | 3 | \$80 | \$720 | | | |
| 3276-6301 | Comm Feature w/Clock | 32 | \$543 | \$17,376 | \$3 | 3 | \$80 | \$720 | | | |
| 3276-6302 | Comm Feature w/o Clock | 24 | \$365 | \$8,760 | \$2 | 3 | \$48 | \$432 | | | |
| 3274-61C | Remote Term Ctlr w/16 Lines | 2 | \$7,600 | \$15,200 | \$27 | 3 | \$54 | \$486 | | | |
| 3274-41A | Local Term Ctlr w/32 Lines | 10 | \$18,230 | \$182,300 | \$58 | 3 | \$580 | \$5,220 | | | |
| | Less 9% VPA at 10-19 Lvl | 10 | | (\$1,641) | | | | | | | |
| | | | | (\$16,407) | | | | | | | |
| 3299-001 | Terminal Multiplexer | 40 | \$1,175 | \$47,000 | \$0 | 60 | \$0 | \$0 | | | |
| | Less 15% VPA at 30-59 Lvl | 40 | | (\$176) | | | | | | | |
| | | | | (\$7,050) | | | | | | | |
| | | | | \$2,152,397 | | | \$12,618 | \$112,010 | 48.3 | 19.0 | 59.1 |
| | | | | ===== | | | ===== | ===== | ===== | ===== | ===== |

FOR INTERNAL USE ONLY

COMPUTER ROOM LAYOUTS

Appendix C Notes:

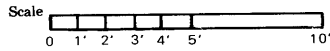
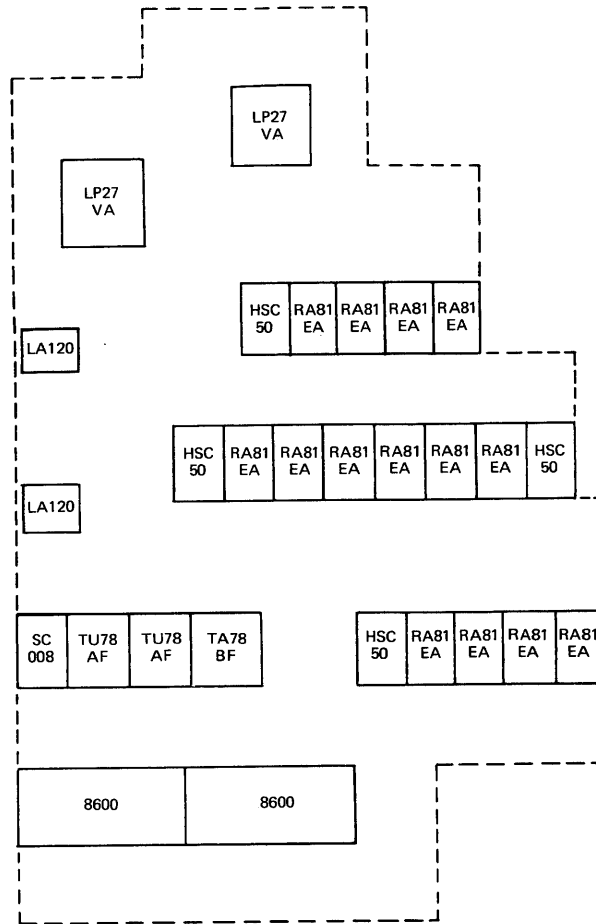
This appendix contains pictorial representations of the computer room layouts for the five-year growth scenarios. Although originally drawn to scale, duplication for publication may distort some dimensions. Areal calculations were made from measurements taken on the original, to scale, drawings. The original layouts were done using a scale of 3/16" equal to 1'. The purpose of creating actual computer room layouts is to allow for service clearance overlaps between the various hardware components installed.

For the VAXcluster it was assumed that communications multiplexers and modems would not be located in the computer room proper but rather in a separate communications room. A similar assumption was made for the IBM mainframe in that modems and locally attached 3274 terminal controllers would be located outside the computer room.

The IBM mainframe was positioned using the minimum 308X CPU to 3082 Processor Controller clearances allowed. The relational positioning of these two hardware items is predefined by IBM and not at the discretion of the computer room designer.

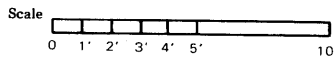
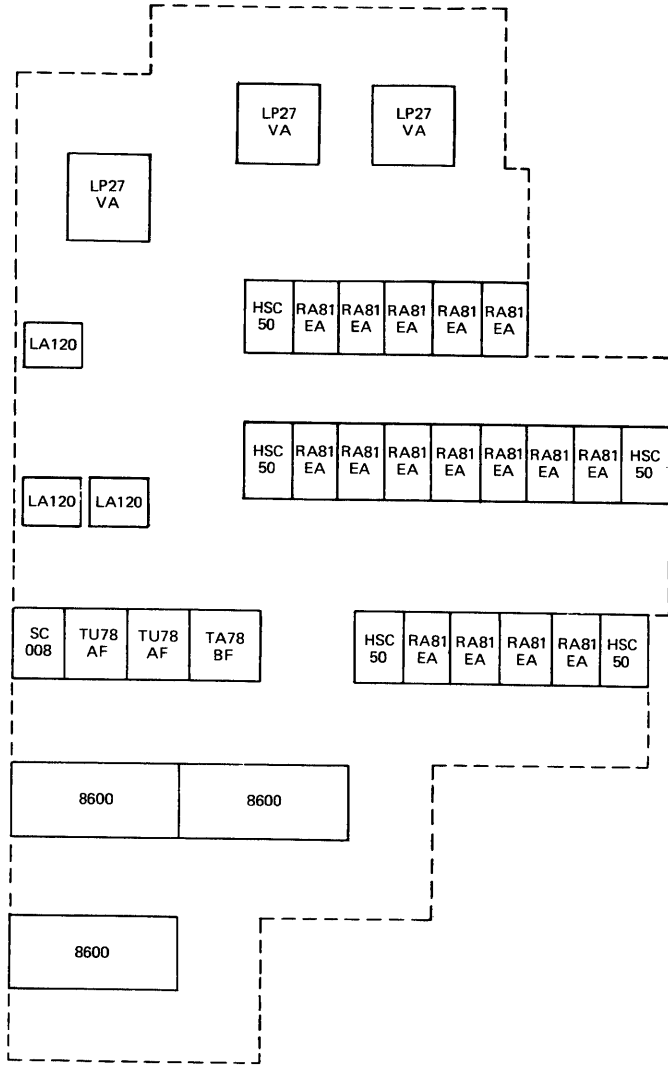
FOR INTERNAL USE ONLY

VAXcluster - Year 1 596.2 Sq Ft



FOR INTERNAL USE ONLY

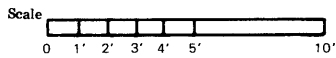
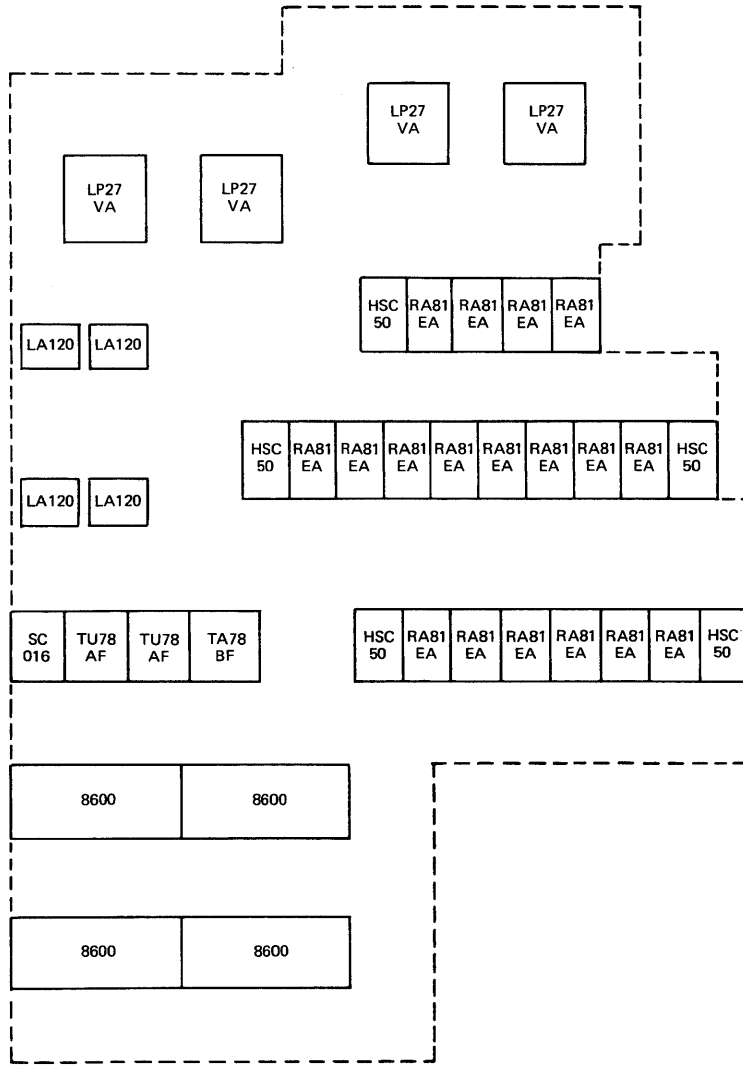
VAXcluster - Year 2 722.0 Sq Ft



FOR INTERNAL USE ONLY

VAXcluster - Year 3

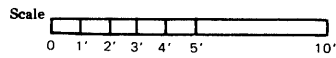
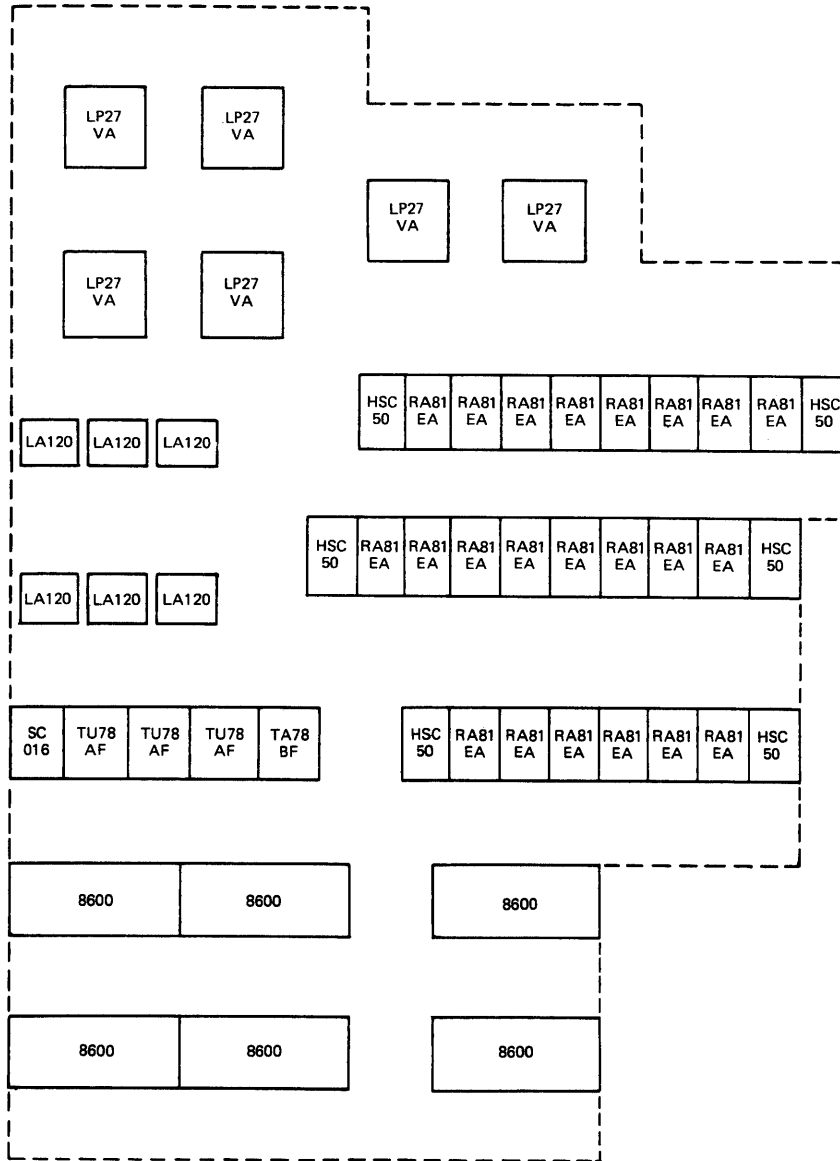
831.0 Sq Ft



FOR INTERNAL USE ONLY

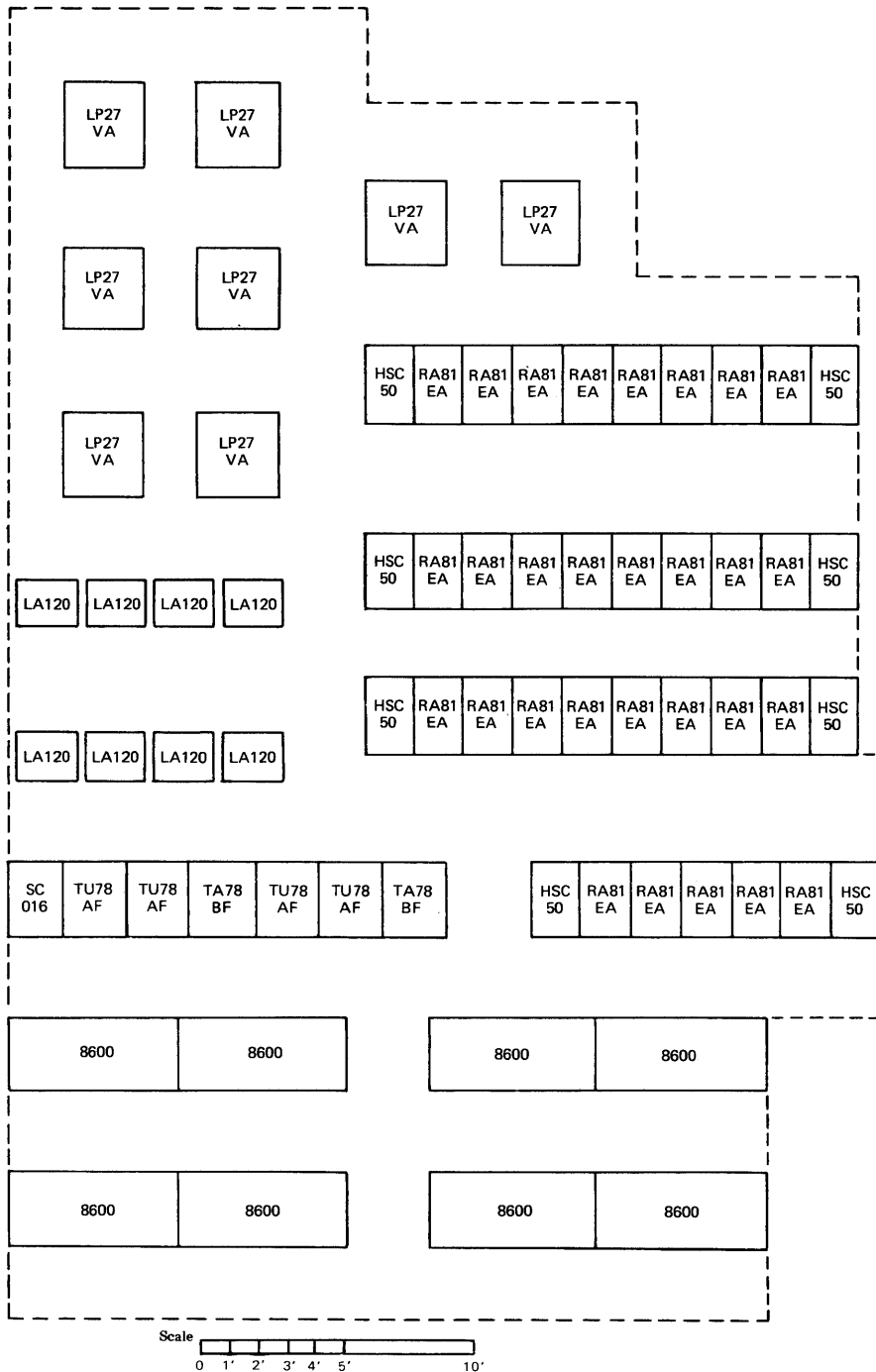
VAXcluster - Year 4

1077.5 Sq Ft



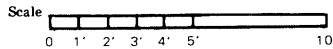
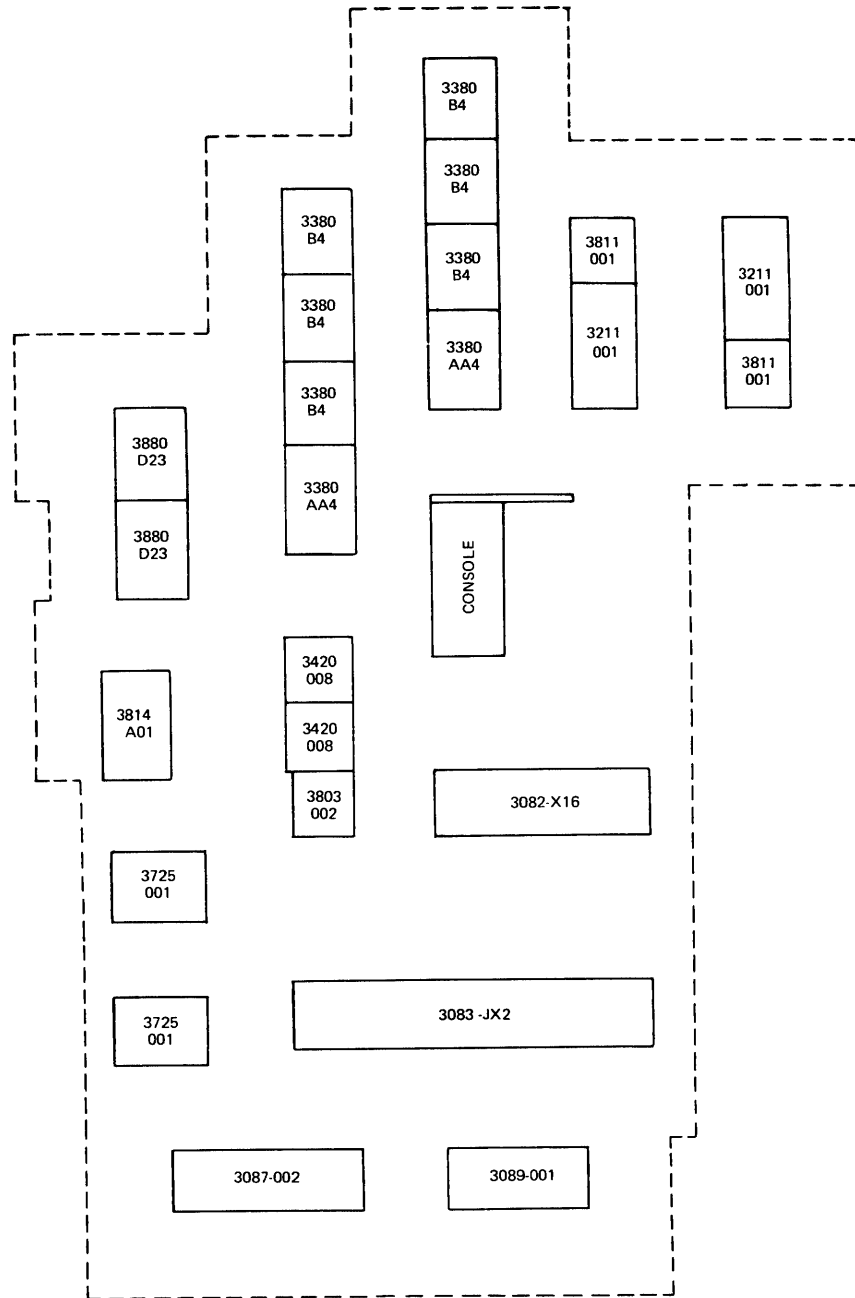
FOR INTERNAL USE ONLY

VAXcluster - Year 5 1375.9 Sq Ft



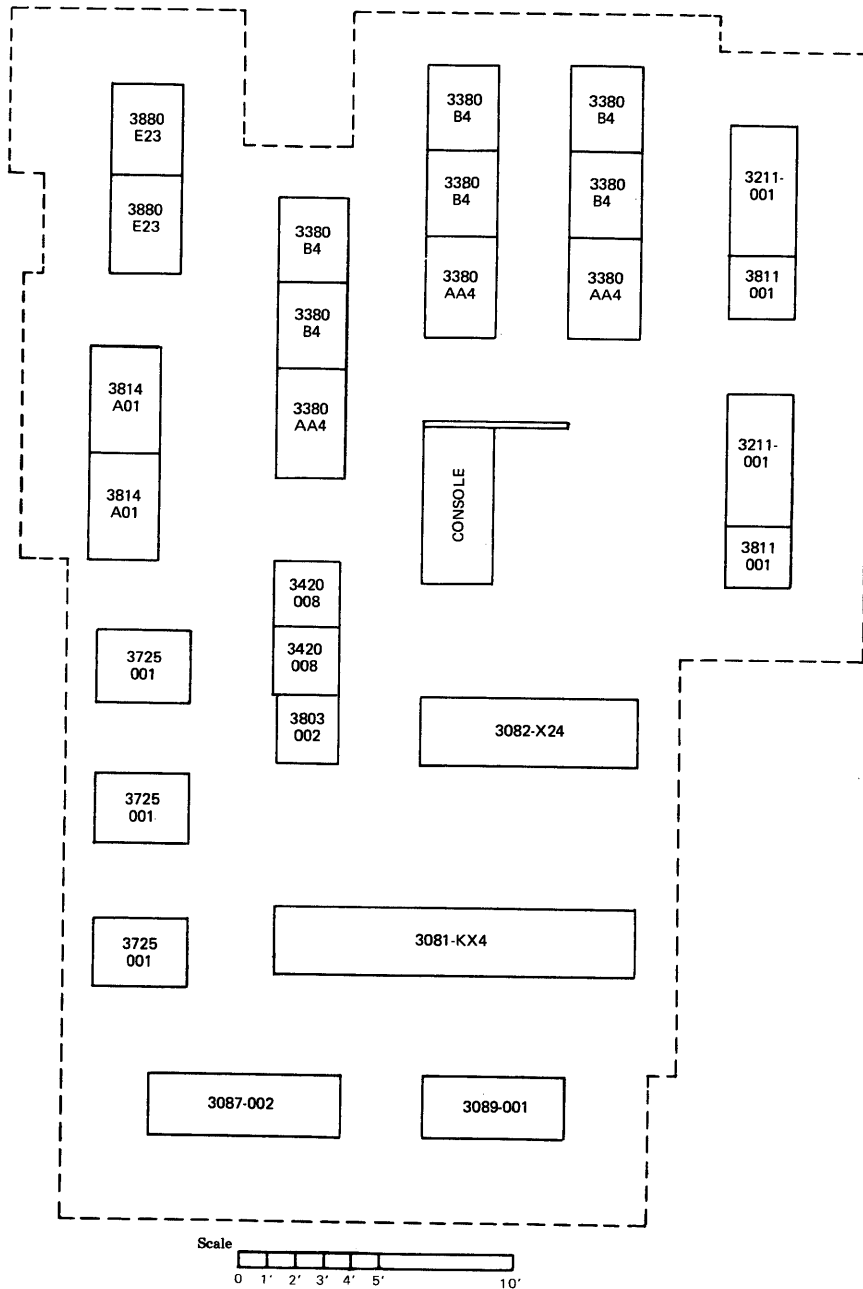
FOR INTERNAL USE ONLY

IBM Mainframe - Year 1 1068.0 Sq Ft



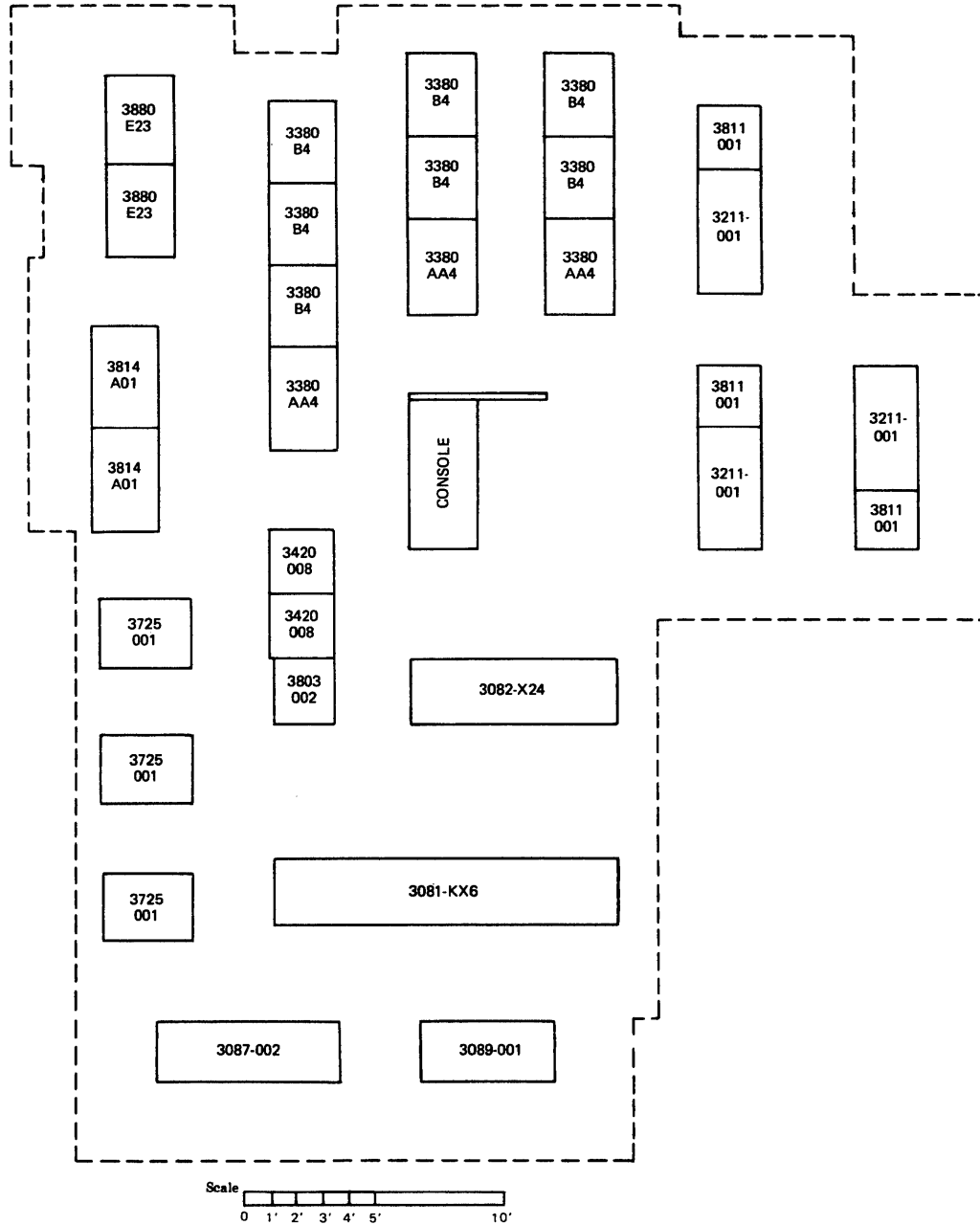
FOR INTERNAL USE ONLY

IBM Mainframe - Year 2 1158.4 Sq Ft



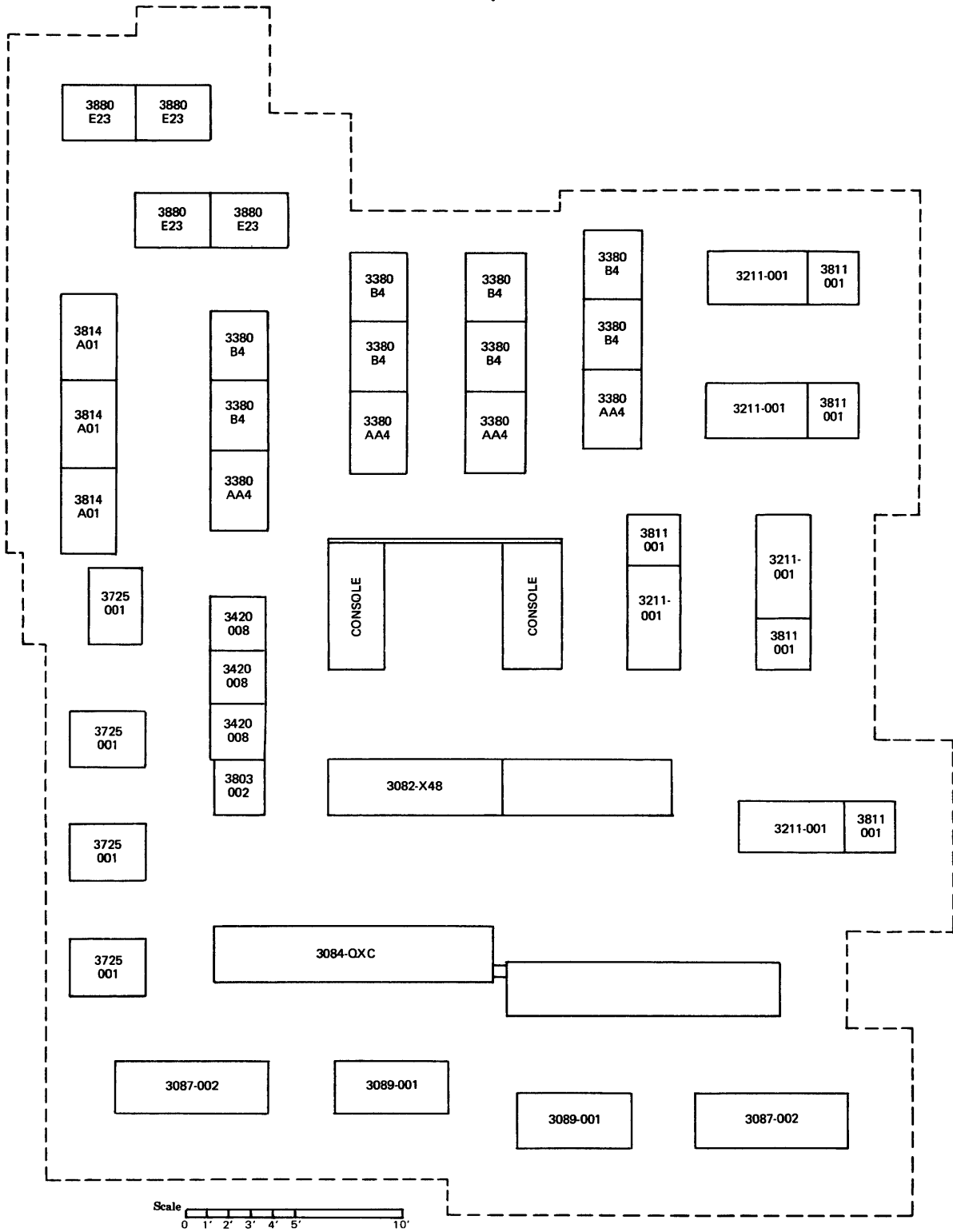
FOR INTERNAL USE ONLY

IBM Mainframe - Year 3 1309.3 Sq Ft



FOR INTERNAL USE ONLY

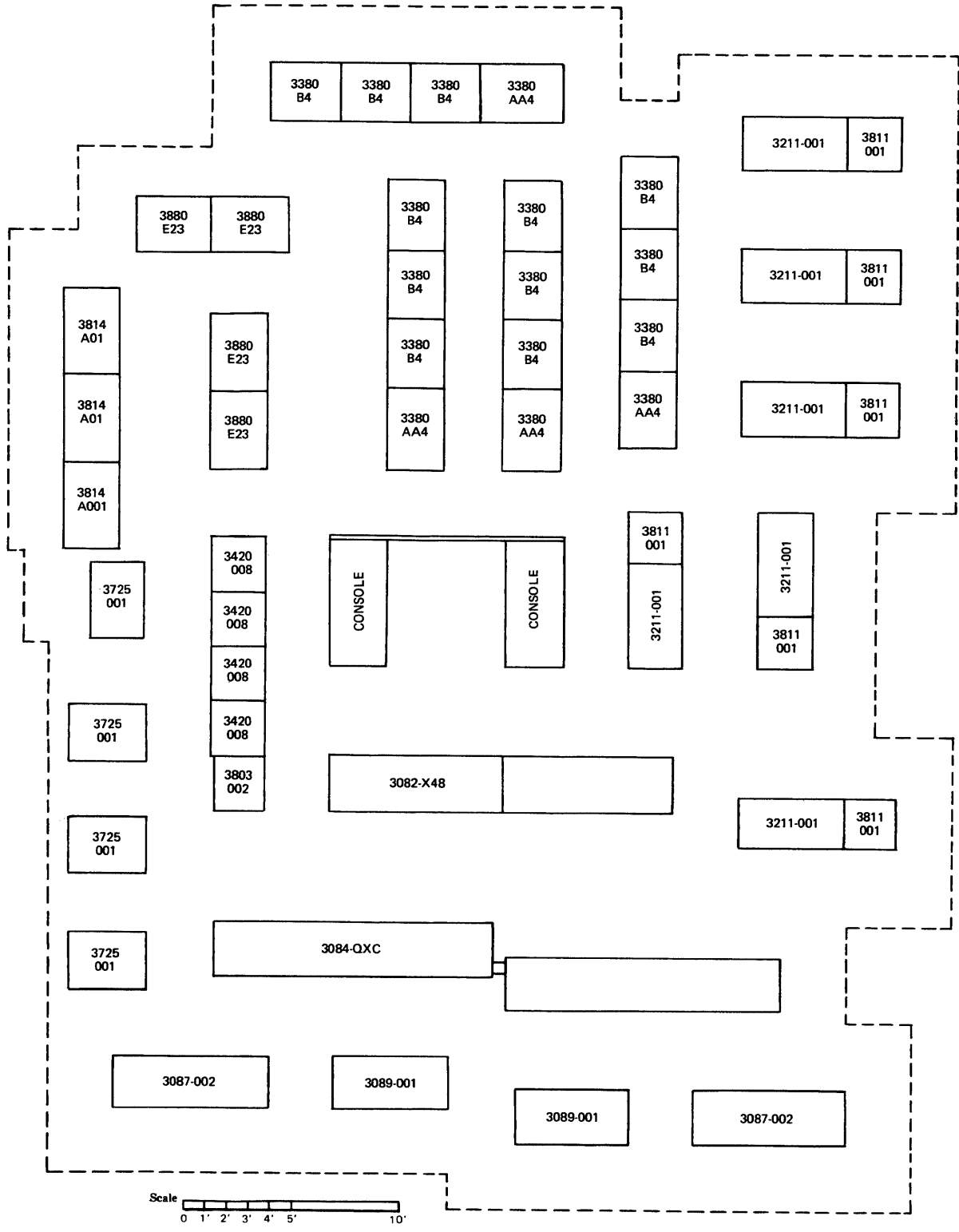
IBM Mainframe - Year 4 1952.7 Sq Ft



FOR INTERNAL USE ONLY

IBM Mainframe - Year 5

2137.3 Sq Ft



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