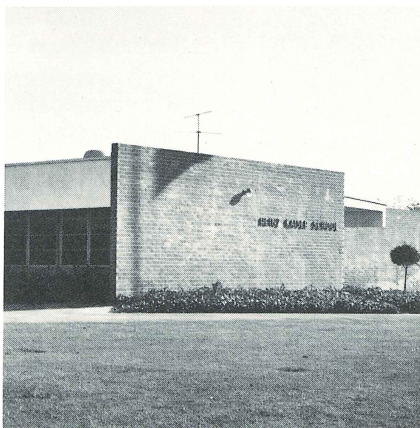


# decsystem10

MARCH 1973

## DECsystem-10 Unifies Newport-Mesa School District



The Newport-Mesa Unified School District is depending upon a Digital Equipment Corporation DECsystem-1040 computer system to meet its daily processing requirements. The DECsystem-1040 is ideal for the District's on-line, interactive COBOL and remote access requirements, and provides complete consistency with the District's philosophy of decentralized access to their information processing system. Chosen for its

modularity and expansion capabilities as well as its timesharing reputation, the DECsystem-1040 will be able to grow as Newport-Mesa's data processing requirements grow. The stories of two successful unions—the union of two school districts and the union between the resulting school district and a DECsystem-1040—follow.

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In 1966, the school districts of Newport Beach and Costa Mesa, both in Orange County, California, were combined to form the Newport-Mesa Unified School District. Initially, the merger created more problems than it solved. Four high schools, six intermediate schools, and twenty-six elementary schools with a total beginning enrollment of 25,000 students were joined under one management system. The biggest problem: How to efficiently administer the unified district while permitting each school its individual operating flexibility.

Ironically, Newport-Mesa found that decentralization was the key to a strongly unified school district. They appointed a district staff to support and coordinate, but left the individual schools to control most of their own operation.

One of the more important decisions of the district staff was to establish a data processing department. None of the member schools had an information system adequate for the district. In fact, working experience was limited to a small punched-card system used for pupil records and grade reporting. Initially, the data processing department selected a batch system. They soon discovered that to be responsive to a decentralized organization, on-line service was required. So the data processing staff adapted their batch system to on-line use, writing their own operating system software and handling their own programming.

The "home-built" timesharing system eliminated duplication of effort and redundant files, thus reducing processing time and file storage requirements. But even during its useful life as an administrative tool, the system had no room for academic timesharing. Students used a Digital Equipment Corporation Timeshared-8 minicomputer, on which up to seventeen students could concurrently run their own BASIC programs.

By 1971, the Newport-Mesa computer system was no longer adequate. Expansion was needed to handle both the existing load and growing requirements. The computer department staff began their search for a replacement system by defining their needs. Ideally, the information system selected would meet their requirements without compromise. After over a year of evaluating various machines, the data processing staff selected a DECsystem-10 computer.

Key to the choice were DECsystem-10's interactive timesharing capabilities and modular growth

possibilities. And, the -10 cost no more per month than Newport-Mesa's previous system.

The configuration initially installed by Newport-Mesa, the DECsystem-1040, consisted of 96K words of core memory, 40 million words of disk storage, two magtape units, a card reader, a line printer and provision for up to 32 remote terminals. Expansion is possible to over 262K directly addressable 36-bit words, with the capability of accommodating up to 127 concurrent timesharing users.

In addition to taking over the complete processing load of the previous computer system under a standard, vendor-supported, timesharing operating system, the DECsystem-10 offered twenty additional terminal lines. The new system also added the ability to provide academic timesharing to students in the district.

Currently, the Newport-Mesa data processing staff is evaluating the possibility of offering such a service. If instituted, it would expose students to the DECsystem-10's rich language library, including COBOL, FORTRAN, APL, ALGOL, and assembly and simulation languages as well as cross-compilers for the PDP-8 minicomputer.

True to their goal of decentralized management, the Newport-Mesa data processing staff avoided a centrally-structured information system. The on-line, interactive timesharing of the DECsystem-1040 permits different kinds of information—sorted and sequenced in many different ways—to be accessed in real time from remote terminals. It is the key to decentralized support, allowing users direct access to a large data base without the regimented operating procedures and delays of a batch system.

Terminals in local schools permit users to maintain their own student files, teacher, and course directory files. The system is designed so that schools can use any of 34 standardly-defined data definitions (soon to be increased to 65) to establish and maintain their own records. The student files can be updated remotely by reading mark reporting sheets, test answers, and similar data marked on optical character reader (OCR) sheets. Files can also be maintained and queried on-line via terminals in the personnel office. Financial information is also maintained, with purchase orders generated remotely at a terminal in the business office. Used in this way, the DECsystem-10 computer becomes a tool of the individual educator, serving as both a resource made possible by unification and a reason why unification was successful.

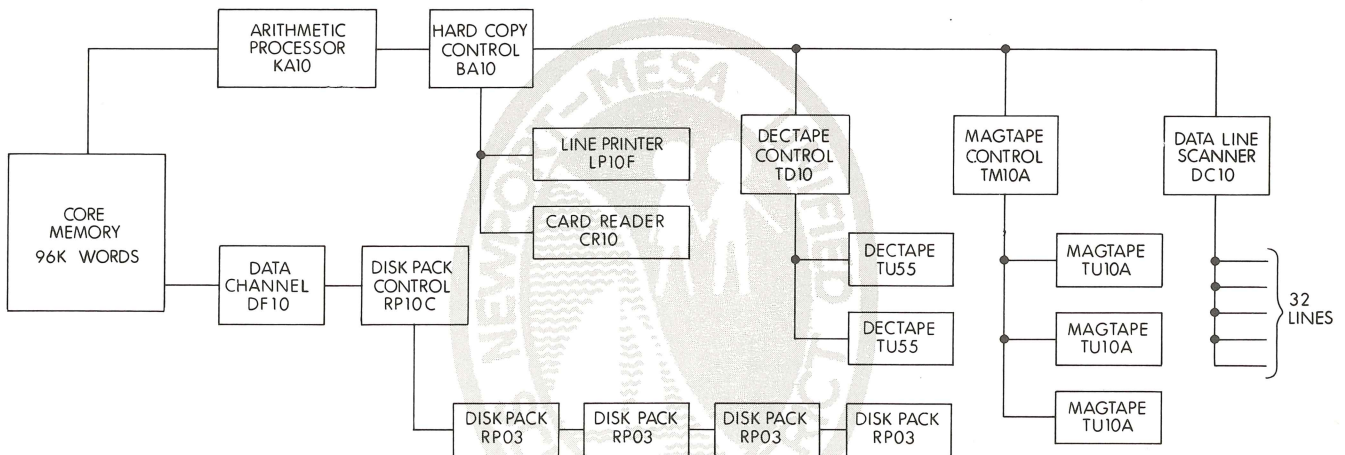


The DECsystem-1040 satisfies the total data processing requirements of the Newport-Mesa Unified School District. Processing is divided into the following systems:

- Pupil Enrollment System—includes a master file-handling subsystem and an enrollment and attendance subsystem.
- Student Scheduling System—uses the student master file and either a fixed-time pattern algorithm or flexible, modular algorithm.
- Mark Reporting System—provides grade reports, records, and analysis using pre-identified forms and optical character readers. Both standardized and teacher-created tests are scored and results reported.
- Personnel File Maintenance and Reporting System—includes personnel information and payroll.

- Budget System—includes an appropriation control and budget analysis subsystem for determining individual appropriations for each line item of each operating unit of each division. A requisition control subsystem processes all requisitions, first checking for sufficient funds, then pre-encumbering the budget system. A property control subsystem fulfills all warehouse requisitions. The purchasing subsystem writes purchase orders for all pre-encumbered requisitions while the accounts payable subsystem processes all vendor invoices.

In addition, reports concerning district operations are periodically generated by the DECsystem-10, including operating reports regularly supplied to the Board of Education.



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