

# University of Calgary houses world's largest single Honeywell Multics system at a university

*Teaching and research are the primary uses for Honeywell computer hardware and software in universities across Canada. Students, teachers and researchers share ideas, hold forums for discussion and experiment with new technology. In return, state-of-the-art software is being developed at universities for Honeywell products. Like Wilfrid Laurier, Waterloo and Carleton universities, the University of Calgary is a major user of Honeywell equipment.*

*In the last of a four-part series about Honeywell's involvement at Canadian universities, PULSE examines the University of Calgary, one of Honeywell's largest university clients.*

Since the late 1970s, Honeywell has been working with the University of Calgary, home of the world's largest single Honeywell Multics system at a university.

Although Multics is a highly sophisticated timesharing computer, its forte is its networking capability, allowing users to share information, hold forums, teach classes and have access to computer assisted learning packages.

At the University of Calgary where full and part-time students number 20,000, the Honeywell system is used for teaching and research. Computer equipment worth \$60 million is used for academic purposes alone.

In addition to the DPS 8/70M mainframe at the University, there are 600 VIP 7400 terminals, developed by Honeywell specifically for the University to work with the Multics operating system.

"Multics is the only computer made today to have achieved a B2 security rating in the United States," says Dr. Ron George, Director of Academic Computing, which includes SuperComputing Services and the Advanced Computing Technology Centre at the University of Calgary. "This means it is the most secure, general purpose computer in the world, able to protect all types of confidential academic information."

In a university setting, teaching is an important use for the Honeywell system. Students in every faculty using its text processing, languages, computer assisted learning and statistics packages. (Honeywell and the University are also partners in the Canadian Centre for Learning Systems, featured in the next issue of PULSE.)

The University of Calgary offers degree programs in Medicine, Physical Education, Management, Computing Science, Environmental Design, Law, Nursing, Engineering, Fine Arts, Humanities, Sciences, Social Sciences, Education and General Studies.

Computing Science degrees are offered at all levels, and throughout the university, computing is being taught in graduate and undergraduate classes.

"Ironically, the new uses for computers are to teach almost everything but computer

science," says Dr. George. "Literally every faculty makes use of computers and the growing use is in the faculties of arts, humanities and social sciences — places where you don't think of traditional computing being done."

Engineering students use computers for all parts of their engineering curriculum including computer aided design.

"Interestingly enough, the mechanical engineering department probably has more computing capacity dedicated to its use than the whole campus had four years ago," says Dr. George.

*The University of Calgary is connected by computer with all major university and dedicated networks in the world.*

In the research area, statistics, modelling and graphics packages are popular in addition to file storage and networking.

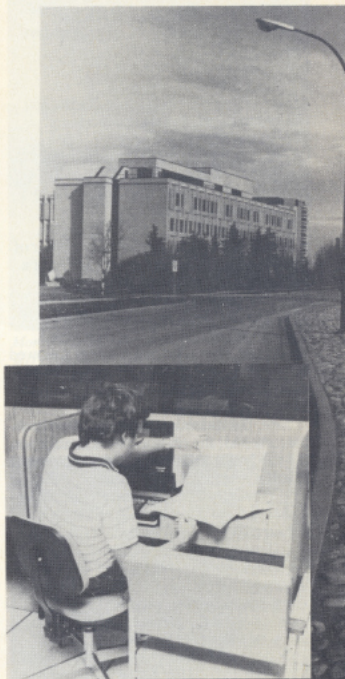
"With Multics' specialized software, researchers can consult with colleagues across Canada and around the world," says Dr. George. "We are connected with all major university and dedicated networks in the world."

The University administration uses the Honeywell system for its extensive databases. For example, the research services department at the University has a very sophisticated database listing researchers and ongoing research projects there.

Another rapidly expanding area at the University is software development. The Advanced Computing Technology Centre (ACTC) has a \$7.5 million contract to develop software for Multics computing systems to be delivered to Honeywell Limited over the next five years. Through Honeywell's Toronto Software Development Centre, the University has contracts with Honeywell Information Systems in Phoenix and Boston.



*Dr. Ron George, Director of Academic computing at the University of Calgary, says researchers there can consult with colleagues worldwide using Multics.*



*The University of Calgary's 20,000 students use the Honeywell system for text processing, languages, computer assisted learning and statistics packages.*

Most of the 45 employees at the ACTC are graduates of the University of Calgary's Computer Science faculty. Their work includes projects for the local area networks, new compilers and updating old compilers but their largest contract, by far, is Honeywell's Multics system.

As part of the contract with Honeywell, the University of Calgary also does teaching and consulting all across North America, sharing their expertise with Honeywell customers.

"Our expertise is useful in helping solve problems because we have experience with Multics," says Dr. George. "We often go to customer sites to consult."

Since the University received the Multics hardware in 1979, the system's use has been expanded, and equipment replaced and updated to a total value of \$12 million.

All the Honeywell hardware (aside from terminals scattered across campus) is consolidated in the basement of the Math Sciences building at the University where it occupies 11,000 square feet.



There are about 10,000 active computer accounts at the University of Calgary, with the Multics system running 250 to 300 at a time for optimum performance. This means about 2,000 people log on to the system in one day.

Honeywell terminals can be seen everywhere on campus, from individual offices to terminal pools in the library and residences.

"Our complete computing networks including the mainframe computers are very dependable," says Dr. George. "They are available 365 days a year, 24 hours a day. Our whole philosophy is open architecture although there is controlled access to mainframe computers because we want to ensure people are using equipment properly."

Dr. George says the availability of terminals is much better now than it used to be. "At the peak periods of the year, (the end of November and March/April), I don't think there's any doubt that our systems are very busy indeed, but we really haven't had any student complain for about two years and that was before we put in 600 new terminals."



*Multics equipment, worth \$12 million, at the University of Calgary has been updated since 1979.*

The University has increased its computing power 1,000 times since 1981 by purchasing additional equipment.

"With the student population growing by 10 per cent each year and with all the new uses for computers, our demand for computer services on campus is expanding at a rate of 30 to 40 per cent a year," he notes.

The University itself is expanding, with \$165 million slated for new construction over the next two years in preparation for the 1988 winter Olympics to be held in Calgary. The interconnection of computers is now a part of the complete planning cycle for new buildings, notes Dr. George.

*Honeywell's relationship with the University of Calgary is typical of the motto 'Together we can find the answers!'*

Don Siler, I.S. Customer Sales and Service Operations, Calgary, is the account representative for the University of Calgary, responsible for integration of Honeywell systems at the University. He says there is great potential for Honeywell to offer the University their integrated building concept.

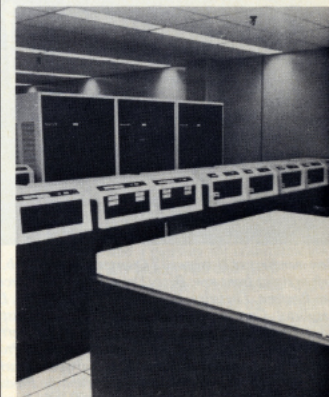
"We are just beginning to scratch the surface there when it comes to building operations," he says.

As for the future, Dr. George anticipates a 30 per cent growth in mainframe computing. This will, of course, be affected by the growth and use of microcomputers but he expects the University's major invest-

ment to be an even distribution among microcomputers, mainframes and communications networks.

As the University of Calgary grows, Honeywell's well-defined role will evolve in the multi-vendor environment there.

"Honeywell's relationship with the University of Calgary has been very strong over the years," says Mr. Siler. "It is typical of the motto 'Together we can find the answers' because we work closely with them on a one to one basis. The co-operation is outstanding between Honeywell and the University and it is the type of relationship Honeywell is proud to have."



*Most of the Honeywell hardware occupies 11,000 square feet in the basement of the Math Sciences building at the University of Calgary.*