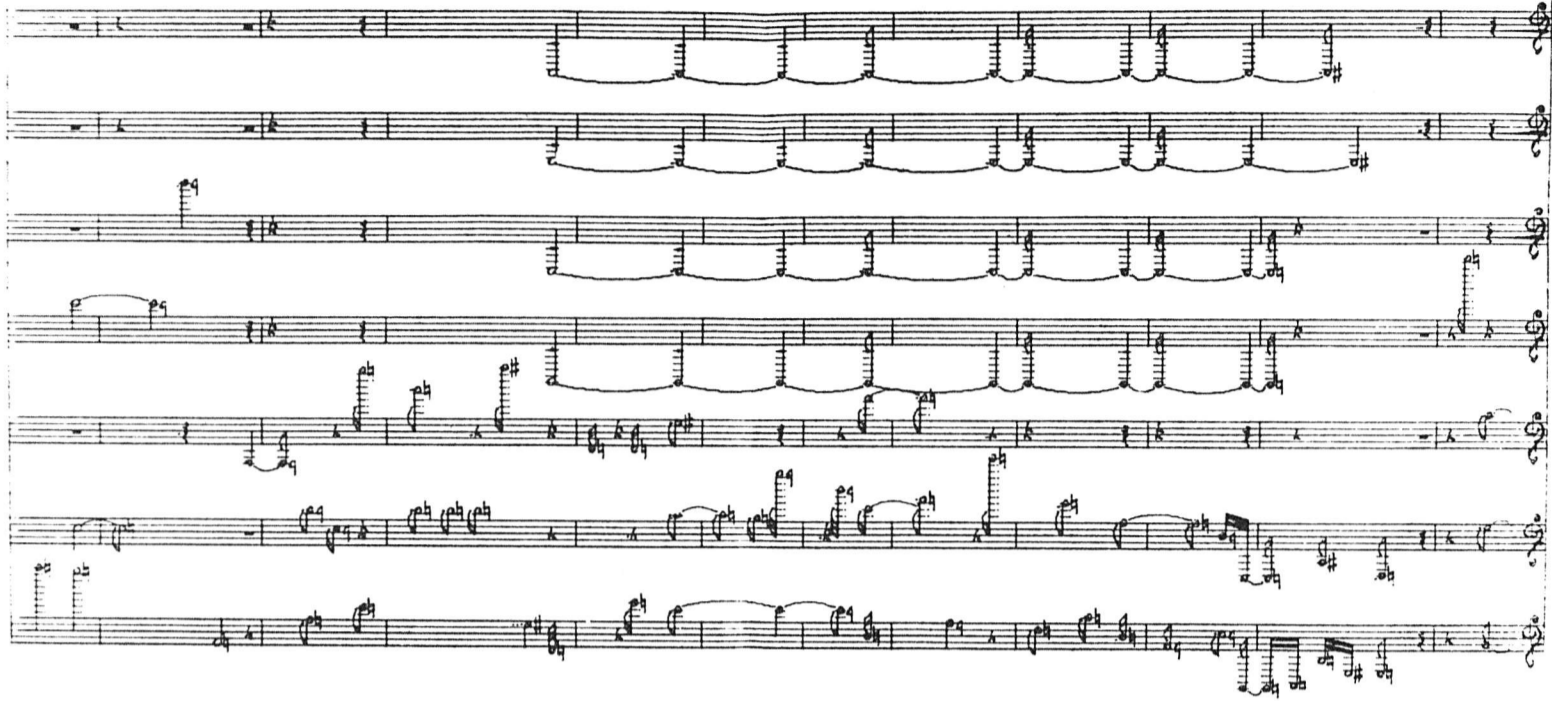


# Computers can do anything — even



By GLENN CHERITON

**SUBROUTINE: CASSEROLE**  
**DO 1 PAGES 1, 8**  
**READ (TOP, BOTTOM) PAGE**  
**1 CONTINUE**  
**IF (PAGE EQ. 1) GO TO 2**  
**1 CONTINUE**  
**GO TO 3**  
**2 WRITE (6, 200)**  
**3 RETURN**  
**200 FORMAT (1H, 18H**  
**CONFUSING ISN'T IT)**

You are now on the fourth floor of the physics-computing sciences building, in the computing centre.

In the centre of a large, laboratory-sized room sits an innocent-looking 10 by 3 by 6 foot cabinet which houses an IBM 360/67 computer. The cabinet looks no different from any of the multitude of equal-sized cabinets also in the room and is rarely touched by the technicians in the room.

Yet all the rest of the equipment, the scurrying technicians, and the people in the adjacent offices serve to keep this broom-

closet-sized computer fed with data and electrical power, cooled by air conditioning, running coherently and to get rid of the computer's vomitings of information.

This computer is the second largest in Canada. Size is not measured by physical dimensions. It is determined by such things as information capacity and numbers of decision-making elements.

Beside the computer cabinet are three air-conditioning units, each as big as the computer itself. These are needed because the circuitry produces 160,000 BTU's per hour, enough heat to warm two large houses. High temperatures make the computer inoperable and the room uninhabitable.

The computer itself is not as complex as one usually imagines a computer to be. The panel on the front of the computer has several rows of buttons, switches, and blinking lights which are used mainly for checking the system when something goes wrong.

Inside the cabinet you may see neat-looking rows of matchbox-sized printed circuits in door-sized arrays. These circuits are all plugged in and can be replaced individually.

All the arithmetic and logic functions are performed by these printed circuits.

The computer also has 20 registers or extremely fast access memory banks. The computer can take two members out of the registers, add or subtract them, and replace them in the registers in about 100 billionths of a second.

There are few wires in the computer itself. Printed circuitry has replaced much of the wiring and another development has replaced much of the traditional rat's nest of color-coded cable with neat plastic tape.

The wires are imbedded in an inch-and-a-half-wide clear plastic tape by a technique allowing the wired movement within the plastic. Because of this technique,

the tape can be bent to fit the connections. Wiring is simplified and can be done with greater speed, accuracy and neatness.

The registers cannot hold all the information the computer requires, in fact it holds only an extremely small portion of it. The rest is

stored in auxillary memories which take up a large part of the space in the computing centre.

Memories are classified according to speed of access. Next to the registers the core memory, with an access time of 750 billionths of a second, is the fastest memory.

## Comp sci is fast-growing department

By GLENN CHERITON

The U of A's Department of Computing Science takes the honor as the fastest-growing department on campus.

From its official creation in April, 1964 it has grown until it now occupies half of both the fourth and fifth floors of the physics-computing sciences building. Since the math department moved to Campus Towers in late 1966, computing science alone shares the building with the physics department.

There has been a computer on campus since 1957. The computers have been changed at quite regular three-year intervals as the models became outdated. Department head Dr. D. B. Scott sees no alteration in the rate of obsolescence and forecasts they will replace their present IBM 360 computer (received in 1967) in 1970.

New, large computers such as the 360 are often rented rather than bought. The computing centre rents the computer and IBM does all the maintenance. There are three full-time IBM technicians in the centre.

Dr. Scott said the computer replacing the 360 would have integrated (microminaturized) components, more remote locations and "certainly time sharing". Time sharing, at pre-

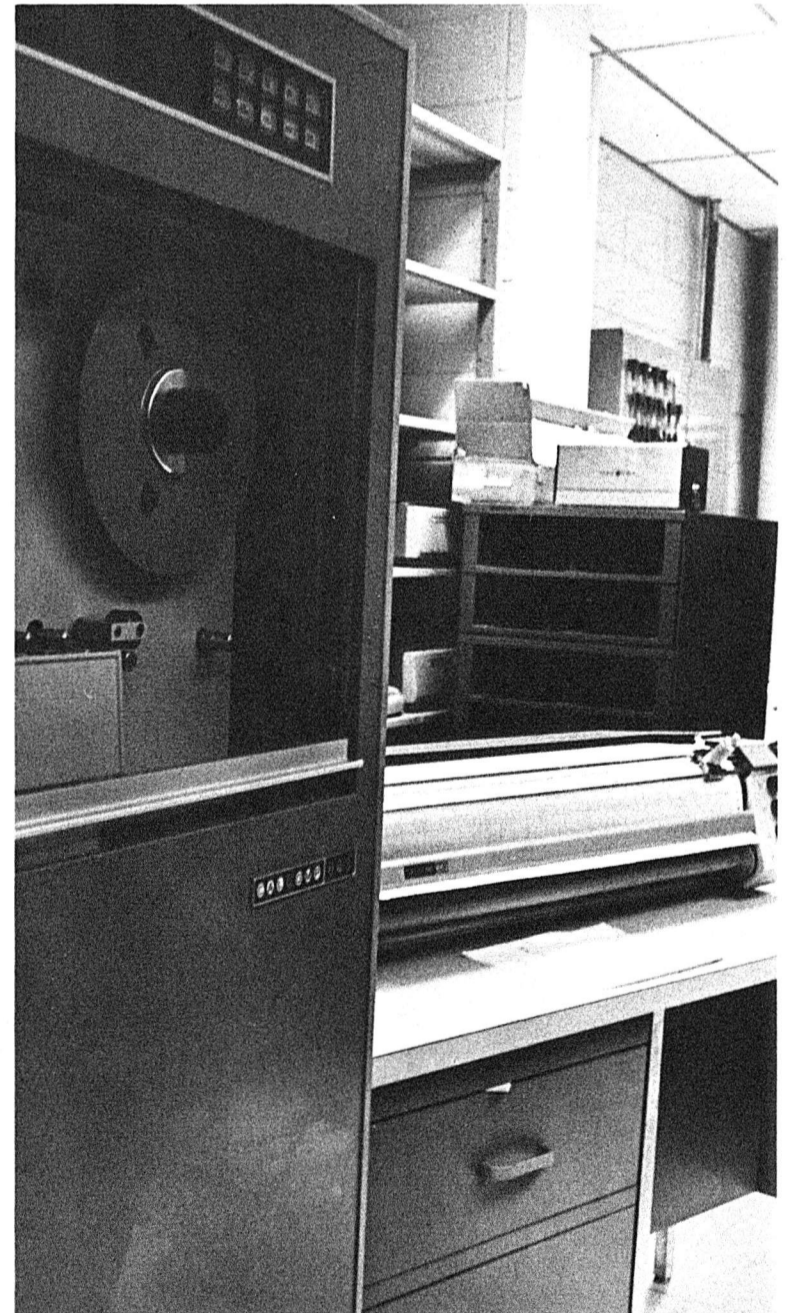
sent a source of friction between the department and IBM, consists of having multiple terminals tied into the computer.

Dr. Scott said, "The demand on computing equipment has increased by a factor of 10 every 2½ years but the cost of meeting this demand has increased by a factor of two every 2½ years."

The present budget of the department is about one and a half million dollars. Of this, just under one million dollars goes toward hardware (equipment). Software refers to the computing language systems, and programming material which tells the computer what to do.

Computing science department equipment is to be found all over the campus, since all departments make use of the facilities. An education professor, Dr. S. M. Hunka, has one of their computers in the education building and is using it for computer assisted instruction. There are terminals all over the campus connected to the IBM 360.

There are more than 50 persons on staff in the department. Of these, there are about thirteen operators of the computer in the computing centre, which is part of the computing science department.



INSIDE THIS MAGNETIC TAPE

... is all sorts of fascinating stuff

—Lyll photo