

Christian Rovsing A/S

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Ada-compiler

Med henblik på at styrke fortsatte afsætningsmuligheder på eksportmarkederne er det nye programmeringssprog Ada af betydning. Derfor indgik selskabet i et samarbejde med Dansk Datamatik Center og Olivetti, Italien, om udvikling af en Ada-compiler.

Ada er et meget effektivt og »transportabelt« sprog, der vil blive anvendt såvel i USA som i Europa især til datakommunikation. Projektet finansieres delvis af EF.

Ekspansion

Der har i løbet af 1980 været en betydelig tilgang af nye medarbejdere, således at der ved årets udgang var ansat 482 mod 383 året før. Det svarer til to nye medarbejdere pr. uge, og der er derfor foretaget betydelige investeringer i nye arbejdspladser med tilhørende udstyr og uddannelse. Desuden blev en tilbygning på 3.200 kvadratmeter taget i brug, og bygning af endnu en fløj blev påbegyndt.

Ny organisation

Som et led i ekspansionen blev edb- og elektronikdivisionerne suppleret med en ny division, system-divisionen. Denne arbejder især med større projekter inden for datakommunikation.

Der er en tæt koordination mellem divisionerne inden for udvikling og markedsføring. Således er den administrative CR801 et resultat af et samarbejde på tværs af divisionerne.

Samarbejdet giver en fleksibilitet, der muliggør en hurtig reaktion på nye tendenser inden for maskinel og programmel.

Fremtiden

Edb-markedet er fortsat ekspansivt, især hvor det gælder sikre og pålidelige systemer. Derfor ventes en betydelig fortsat vækst for selskabet.

Ada compiler

Ada, the programming language, is an important factor in securing the company's continued export potential. For this reason, the company has concluded an agreement with Dansk Datamatik Center and Olivetti of Italy for development of an Ada compiler. Ada is a highly efficient and "mobile" language, which will be used increasingly in the United States and Europe, particularly for data communication. The project is financed partly by the European Community.

Expansion

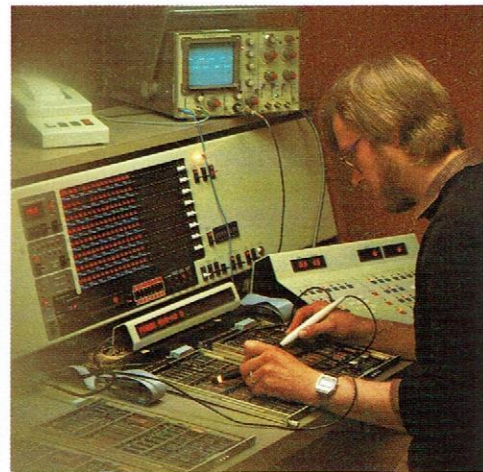
The company engaged a large number of new employees in 1980. At December 80 the work-force numbered 482, compared with 383 a year earlier. This averaged an addition of two new employees weekly - necessitating substantial investment in new jobs, equipment and employee training. Moreover, the company took over a new 3200-m² addition to its headquarters and commenced construction of another new wing.

A new corporate unit, systems division, was set up to supplement the existing EDP and electronics divisions. Systems division will concentrate on major projects in the field of specialized data communication.

The divisions collaborate closely in the fields of development and marketing. The administrative CR801 minicomputer, for example, is a result of interdivisional co-operation. This close relationship generates a flexibility that enables the company to react quickly to new trends in hardware and software.

The future

The data-processing market continues to expand. There is especially room for secure, reliable systems. The company therefore expects its growth rate to continue rising substantially.



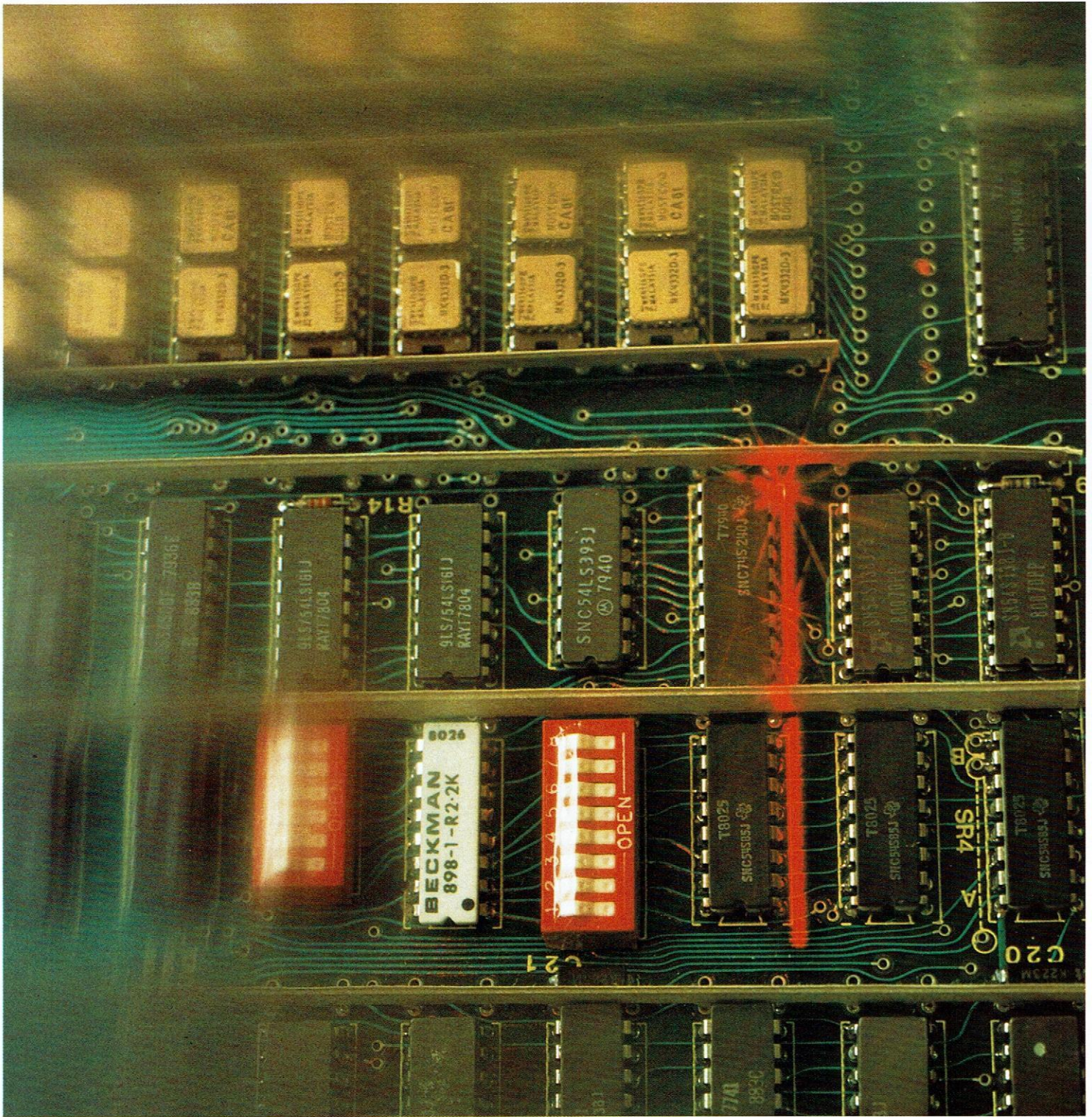
Alle CR80-moduler undergår omfattende afprøvninger blandt andet ved hjælp af den forprogrammerede Fluke-tester. Under testen indkredses eventuelle fejl hurtigt ved en kontrol mod et allerede fejlfrit modul.

All CR80 modules are thoroughly checked by methods including the pre-programmed Fluke tester. In the course of the test any faults are quickly localised by comparing performance with a faultless module.

Vor nye administrative minidatamat CR801 er et resultat af et nært samarbejde mellem edb- og elektronikdivisionen. CR801 er udviklet på grundlag af CR80 datamaskinens avancerede maskinel og programmel. Programpakken CRMINI dækker en lang række administrative områder, mens specialprogrammer skrives i COBOL.

Our new administrative minicomputer, the CR801, is a result of cooperation between the EDP and electronics Divisions. The CR801 was developed on the basis of the sophisticated hardware and software of the CR80 computer. The CRMINI programme package accommodates administrative routine requirements, and special programmes are written in COBOL.





SNC54LS161J
RAV17804

SNC54LS161J
RAV17804

SNC54LS161J
RAV17804

SNC54LS393J
T940

T7940
SNC74S240J

T8025
SNC54LS393J

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BECKMAN
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OPEN

T8025
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SR4

G20
K23M

C21

R14

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En laserstråle vejleder under arbejdet ved de nye edb-styrede montageborde. Dette betyder en øget effektivitet, der er en medvirkende årsag til, at produktionen i 1980 blev doblet.

A laser beam provides guidance control for work at the company's new computerised assembly benches. This has contributed to greater efficiency and was one of the factors that helped double the company's output in 1980.

CR80-udviklingen

CR80 datamaskinen blev oprindeligt udviklet i 1975 til behandling af de store mængder meteorologiske vejrdata fra Meteosat-satellitten. Ydeevnen er siden øget konstant gennem forbedret maskinel og programmel.

CR80 kapaciteten kan udvides fra 1 mio instruktioner pr. sekund (MIPS) til 50 MIPS - sædvanligvis i spring på 1 MIPS. Udvidelser vil ofte kunne foretages på arbejdende systemer.

På programmelsiden er udviklet avancerede styresystemer, datakommunikationsprotokoller og database-systemer. Et særligt kendetegn for CR80 er et overvågningssystem til brug under drift. Systemet måler blandt andet spændinger og temperaturer overalt i maskinen og betyder en lettelse i vedligeholdelsen.

Der er i løbet af 1980 udviklet en hurtig PASCAL-compiler til CR80. Til den administrative CR801 er der udviklet en COBOL-compiler.

CR80-udviklingsgruppen består af over 100 medarbejdere.

Datakommunikation

Årets største ordrer var på CR80 til datakommunikation. Brug af optiske fibre til kommunikationen er påbegyndt, hvor systemerne også anvendes til tekstbehandling. De optiske fibre giver stor transmissionshastighed og indebærer en begrænsning i såvel udstråling som påvirkning af støjfelte.

Ved årets udgang havde selskabet opnået betydelige ordrer på datanet til de britiske offentlige myndigheder. CR80 leveres som front-end anlæg til centrale ICL-systemer.

CR80 development

The CR80 computer was developed originally in 1975 to process the enormous flow of meteorological data transmitted by Meteosat, the weather satellite. Since then capacity has been steadily increased by development of improved hardware and software.

The capacity of the CR80 can be expanded from 1 million instructions per second (MIPS) to 50 MIPS - normally at intervals of 1 MIPS. Expansion is frequently possible on working systems.

In the software field, sophisticated operating systems, data-communication protocols and database systems have been developed for the CR80. A special feature of the CR80 is its integral monitoring system which functions while the computer is in operation. The system measures voltages, temperature and other factors throughout the machine, facilitating the maintenance process.

A rapid PASCAL compiler was developed for the CR80 during the year. A COBOL compiler was developed for the administrative CR801.

The CR80 system commands a development team of more than 100 people.

Data communication

The year's largest orders were for CR80 systems for data communication. The application of fibre optics in communications is well-established in systems which are also used for word processing. Optical fibres offer a high rate of transmission, reducing radiation and influence of noise fields.

By the end of the year the company had received major orders for data systems from public authorities in Britain. The CR80 is supplied as front-end computers serving central ICL systems.

Administrativ databehandling

Den nye administrative minidatamat CR801 kan leveres med program-pakken CRMINI, der omfatter en række administrative områder. Mere specialiserede systemer programmeres i COBOL.

Til CR801 er der også udviklet et system til kommunikation mellem terminalbrugere og programmerne, CROPS (CR OPERativ System), samt programmel til indekseret sekventiel databehandling, CRAM (CR Access Method).

Inden for edb-divisionens datacenter fortsætter udviklingen i retning af distribution af datakraften til terminalsystemer, hvor brugere selv styrer driftsafviklingen. Det gælder blandt andet standardsystemerne CRFAC (økonomistyring) og CRLØN (lønbekendtgørelse).

Også standardsystemet CRKONTO til administration af kontoringe er udbygget, og brugerkredsen er udvidet med Ballerup Centerkort og Hørsholm Creditcard.

Som en ny aktivitet har datacentret valgt at gå ind på et marked i stærk vækst, nemlig færdige programpakker til IBM-brugere. Edb-divisionen udvikler og forhandler flere pakker inden for basisprogrammel og applikationsprogrammel.

Endelig har edb-divisionen ved udgangen af 1980 samlet sine aktiviteter vedrørende microdatamater i en selvstændig afdeling, der primært arbejder med den bærbare terminal Micronic. I fremtiden forventes en betydelig ekspansion på dette område og indførelse af helt nye produkter baseret på microdatamater.

Administrative data processing

The new administrative minicomputer, CR801, is available with CRMINI, a software package catering for a number of administrative fields. More specialised systems are programmed in COBOL. (Hardwarewise the CR801 is identical to the CR80).

CR801 also offers a system for communication between terminal users and programmes known as CROPS (CR OPERative System), as well as software for indexed sequential data access, CRAM (CR Access Method).

The EDP Division data centre continues development in the direction of distribution of data power for terminal systems, the individual user assuming control of operations. This applies, for example, to standard systems CRFAC (financial accounting and control) and CRLØN (wage and salary administration).

CRKONTO, a standard system for administration of credit-card operations, has been further developed, and new clients include Ballerup Centerkort and Hørsholm Creditcard, two consumer-credit groups on the outskirts of Copenhagen.

The data centre has decided to enter a new field that appears to be growing rapidly: standard software packages for IBM users. The centre is developing and distributing several packages covering basic and application software.

At the end of the year the EDP Division assembled all its activities relating to microcomputers in one department, which concentrates on software development for the hand-held terminal, Micronic. It is expected that the future will see considerable expansion in this field and introduction of a new generation of products based on microcomputers.

Tekniske edb-systemer

Vi har i årets løb opnået en række ordrer på PAM-systemet. Det hidtil største system skal anvendes til energi-overvågning og -optimering i ni lav-energi-huse i Skive. PAM-systemets centralenhed programmeres i højniveausproget PLC, der blev færdigudviklet i 1980.

Der blev også indgået kontrakt om levering af et PAM-system til overvågning af Nationalmuseets samlinger i Brede. Via lokalt placerede PAM-moduler overvåges alle indgange og vinduer samt færden i lokalene.

Inden for standardiserede tekniske edb-systemer er produktsortimentet øget i årets løb. I dag markedsføres løsninger inden for proceskontrol, trafikafvikling, kommunikation og klinikdrift.

Integrerede kredsløb

Design af egne kredsløb indebærer flere fordele. Alle nødvendige funktioner kan samles i én kreds, hvilket giver en stor pålidelighed. Endvidere er en begrænset fysisk størrelse i flere tilfælde af betydning. Det gælder for eksempel for kredsløb, der anvendes i vort PAM-systems lokalt placerede moduler.

Vort største projekt inden for kredsløbsdesign er udviklingen af en stor kreds i teknologien CMOS, der er karakteriseret af et meget lavt strømforbrug. Kredsen, der vil blive anvendt i PAM-systemet, indsamler data fra transducere og transmitterer disse via et to-leder kabel til centralenheden.

Til designarbejdet er indrettet et laboratorium med udstyr, som tillader konstruktion af integrerede kredse med en tæthed på godt 10.000 funktioner pr. chip.

Technical EDP systems

During the year we received a number of orders for the PAM system. The largest of these was for monitoring and optimum efficiency of energy consumption in nine low-energy houses at Skive in western Denmark. The central computer in the PAM system is programmed in high-level PLC language developed in 1980.

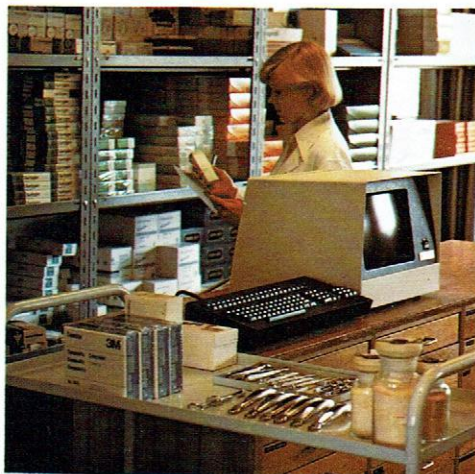
The company also won a contract for supply and installation of a PAM system to guard valuable collections at Brede, a department of the Danish National Museum, north of Copenhagen. Strategically located PAM modules monitor all doors and windows and traffic in the various rooms.

The company's range of standard technical data-processing systems was enlarged during the year. We now market systems for process control, traffic handling, communications and clinics.

Integrated circuits

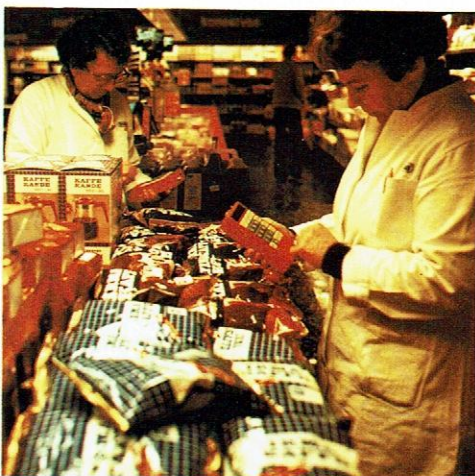
There are several advantages in designing your own circuits. For example, all necessary functions can be assembled in one circuit, providing maximum reliability. And compact physical size may be a factor of importance in many circumstances. This applies, for instance, to circuits employed in the local modules forming part of our PAM system.

Our most demanding project in the field of circuit design is development of a large circuit based on CMOS technology, the distinguishing feature of which is its extremely low power consumption. The circuit, which will be incorporated in the PAM system, collects data from transducers for transmission via two-wire cable to the central computer.



Danmarks største tandlægegrossist D34, der har over 40.000 artikler på lager, anvender den administrative programpakke CRMINI. I systemet indgår foruden centralenheden, 12 dataskærme, 80 millioner bytes (karakterer) pladelagre samt lineskrivere.

Denmark's largest wholesale distributor of dental supplies, D34, stocks a total of more than 40,000 individual items - and employs our company's administrative programme package, CRMINI, to keep check of stocks. In addition to the main computer, the system comprises 12 display terminals, an 80-million byte disc memory, and line printers.



Den store supermarkedskæde Irma anvender håndterminalen Micronic til regelmæssige natlige vareoptællinger. Via telefonnettet transmitteres oplysningerne til viderebehandling i datacentret. I løbet af 1981 vil Micronic også blive anvendt i en to-vejs kommunikation omkring daglige bestillinger.

Irma, one of Denmark's largest supermarket chains, employs the Micronic hand-held terminal for regular overnight stocktaking. Data is transmitted by telephone for processing at the data centre. During 1981 the Micronic system will also be used for two-way communication in placing daily orders.



Den hastigt ekspanderende lavpriskæde af FAKTA-butikker samt supermarkederne inden for BS Marked begyndte i 1980 at anvende datacentrets standard-systemer CRFAC og CRLØN samt specialudviklede systemer.

One of Denmark's fastest-growing discount chains, FAKTA, and the BS Marked chain of supermarkets introduced our data centre's standard systems, CRFAC and CRLØN and specially developed systems during the year.

Rumfartselektronik

Udviklingen i rumafdelingen går mod stadig større stykantal i hver leverance. De største kontrakter i 1980 omfatter højeffektive strømforsyninger til satellitter.

Strømforsyningerne leveres til den europæiske rumorganisation ESA, og der er desuden opnået ordrer på levering til tre franske TV-satellitter og til den svenske videnskabelige Viking-satellit.

I foråret 1980 indtrådte firmaet i selskabet Arianespace. Dette selskab står for markedsføring, produktion og opsendelse af den europæisk udviklede løfteraket Ariane. Til denne raket leverer selskabet blandt andet styrforstærkere til hvert af raketens tre trin.

A special laboratory has been set up for this work, with equipment for design of integrated circuits with a density of more than 10,000 functions per chip.

Aerospace electronics

There is an increasing tendency for the space department to receive successively larger orders for each consignment of components. The largest contracts in 1980 were for high-efficiency power supplies for satellite use.

The power supplies are delivered to the European Space Agency, and orders have also been placed for supplies for use in three French TV satellites and for the Swedish scientific Viking satellite.

In spring 1980 Christian Rovsing A/S acquired an interest in Arianespace, the company responsible for marketing, production and launching of Ariane, the European launching vehicle. Components supplied by our company include servo amplifiers for each of the rocket's three stages.



Denne strømforsyning vil blive leveret til tre franske TV-satellitter og til den svenske videnskabelige Viking-satellit. Rumafdelingens strømforsyninger er kendetegnet af høj effektivitet og lav vægt.

This power supply will be delivered to three French TV satellites and to the Swedish scientific Viking satellite. The power supplies designed and marketed by the company's aerospace department are acknowledged for their high efficiency and low weight.

Nationalmuseets bygninger i Brede overvåges af et PAM-system, der blev installeret umiddelbart før den store vikingeutstilling. Via lokalt placerede moduler overvåges indgange, vinduer og færden i lokalerne.

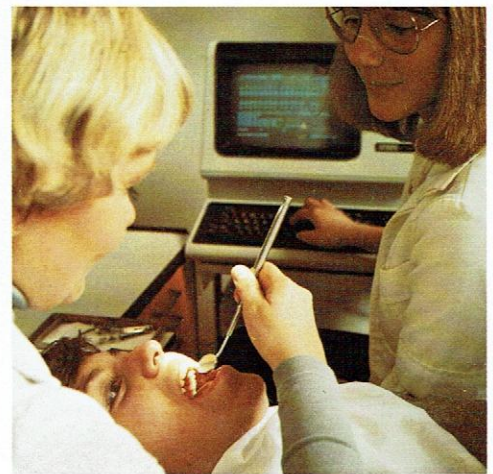
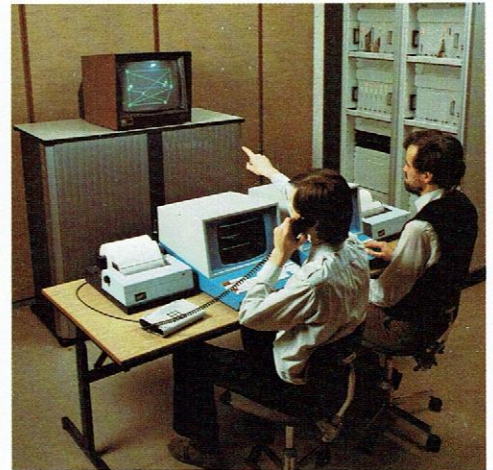
Danish National Museum property at Brede, north of Copenhagen, has been secured by a PAM system developed by our company. It was installed prior to the opening of the successful Viking exhibition. Strategically located PAM modules monitor doors, windows and movements in all rooms.





Der blev i løbet af 1980 indrettet et laboratorium med udstyr, der tillader design af kredsløb med en kapacitet på over 10.000 funktioner. Designgruppens største projekt er udviklingen af en kreds til PAM-systemet.

The company set up a laboratory in 1980 equipped to design large-scale integrated circuits with a capacity of more than 10,000 functions. The design group's biggest project to date has been development of a circuit for the PAM system.



CR80 datamaskiner indgår i flere store datakommunikationsnet. Vi har udviklet systemer, hvor nettets øjeblikkelige status fremgår af et grafisk farvedisplay, hvilket letter operatørens arbejde.

CR80 computers are incorporated in several major data communication networks. We have developed systems in which the current state of the network is shown in a graphic, colour display to facilitate the operator's work.

I nært samarbejde med tandlæger udviklede edb-divisionen i 1980 det administrative system CR-DENT. Via skærmterminaler på klinikkerne og i receptionen er der øjeblikkelig adgang til alle informationer vedrørende behandling og regnskab.

In 1980 the EDP Division in conjunction with the dental profession developed the CR-DENT administrative system. Visual display units in the clinic and at reception provide instant access to all treatment, accounting and other data.

I 1980 leverede CR Card System A/S i alt 66 edb-styrede købekortsystemer til benzinstationer. Klan-kæden har dermed landsdækkende købekortsystemer, og BP har systemer på 14 stationer i det storkøbenhavn-område.

During the year CR Card System A/S supplied a total of 66 computerised credit-card systems to filling stations. BP's Klan chain of self-service stations now has national coverage in Denmark, and BP itself operates systems at 14 stations in the Greater Copenhagen area.

Christian Rovsing International A/S
1980 blev et år med betydelig ekspansion i datterselskabet. Der blev indgået kontrakt om check-out programmet til igangværende satellitprojekter i ESA samt om et datamatsystem til jordstationen for de europæiske kommunikationssatellitter.

Med den svenske telekommunikations-koncern L. M. Ericsson er indgået aftale om levering af et integreret privat datanetværk, der har fået betegnelsen LMENET. Nettet er designet således, at en brugergruppe, der i 1982 vil være på omkring 2.500, har adgang til fire IBM og to Univac centralenheder i virksomhedens centrale datacentre. LMENET består af 10 knudepunkter (packet switching), en integreret front-end processor samt et uafhængigt netværkskontrolcenter.

Endelig færdiggjorde datterselskabet i 1980 udviklingen af et hierarkisk opbygget fejltolerant proceskontrolsystem, der markedsføres under betegnelsen PROCOS. Systemet er baseret på CR80. En specialudviklet integreret kreds indgår på laveste niveau i hierarkiet.

CR Card System A/S

I 1980 afsluttedes leverancer af edb-styrede købekortsystemer til benzin-kæden Klan, der ejes af BP. Til BP-stationer i det storkøbenhavn-område leveredes 14 systemer.

CR Card System A/S påbegyndte markedsføringen af edb-styrede skilte-systemer (plasma-display) i 1980, og der blev indgået kontrakt med DSB om levering til tre nye togfærger.

Christian Rovsing Corporation

Vort datterselskab i Los Angeles fortsatte markedsføringen af moderselskabets produkter på det amerikanske marked. Desuden står selskabet for en del projektarbejde.

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This company enjoyed a year of substantial expansion. Contracts were signed for check-out software for the present series of satellite projects conducted by ESA and for a computer system for ground stations serving the European communications satellites.

An agreement has been signed with the Swedish telecommunications group, L. M. Ericsson, for supply of an integrated, private, computer network named LMENET. The network is designed to allow a group of users (numbering approx. 2,500 in 1982) access to four IBM and two Univac central computers at the L. M. Ericsson main computer centers. The LMENET comprises 10 nodes (packet-switching), an integrated front-end processor and an independent network control centre.

Finally, this subsidiary developed a hierarchal design, fault-tolerant, process-control system, PROCOS. The system is based on CR80. A specially developed integrated circuit is incorporated at the lowest level of the hierarchy.

CR Card System A/S

The year saw completion of contract supplies of computerised credit-card systems to Klan, the filling-station chain owned by BP. A total of 14 systems were supplied to BP stations in the Greater Copenhagen area.

CR Card System A/S began marketing computerised, plasma-display, public-announcement signs in 1980, and a contract was signed with DSB, Danish State Railways, for supply of the sign systems for three new train ferries.

Christian Rovsing Corporation

Our subsidiary in Los Angeles continued to market the products of the parent company in the United States.

Resultatopgørelse/Statement of Income

	1980/1000 kr.	1979/1000 kr.
Salg, eksport/Export sales	60.375	42.472
Salg, indland/Sales in Denmark	84.465	63.925
Total omsætning/Total sales	144.840	106.397
Omkostninger/Expenditure:		
Materialer, lønninger m.v./Materials, wages, etc.	140.294	96.074
Afskrivninger/Depreciation	4.531	4.052
Renteudgift/Interest expense		131
Renteindtægt/Interest income	3.720	
Driftsresultat/Net operating profit	3.735	6.140
Resultat, datterselskaber/Profit, subsidiary companies	2.192	162
Nettoresultat/Consolidated net profit	5.927	6.302

Status/Balance Sheet

	1980/1000 kr.	1979/1000 kr.
Aktiver/Assets:		
Likvide aktiver/Current assets	149	97
Diverse debitorer/Accounts receivable	66.193	24.656
Igangværende arbejde, varelager/ Work in progress, inventory	13.888	8.743
Anlægsaktiver/Fixed assets	30.575	14.513
Totale aktiver/Total assets	110.805	48.009
Passiver/Liabilities:		
Diverse kreditorer og forudbetalinger/ Payables and prepayments	64.246	14.741
Skyldig til det offentlige/Accrued tax	3.560	1.801
Bankgæld m.v./Bank loans, etc.	25.577	19.972
Total gæld/Total liabilities	93.383	36.514
Egenkapital/Own capital	17.422	11.495
specificeret således/specified as follows:		
Aktiekapital/Equity capital	2.000	2.000
Lovmæssig reservefond/Statutory reserves	500	500
Ekstra reservefond/Extra reserves	200	200
Overført til næste år/Retained earnings	14.722	8.795

