

c/o I.R.C.A.M., 31 Rue Saint-Merri, 75004 Paris, France

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activité/activity/attività -----

A Real-Time Computer Controlled Digital Oscillator Bank
(Istituto di Fisica, Università di Napoli, and
I.R.C.A.M., Paris)

MPeC MCC

A small scale computer controlled digital oscillator bank that provides 256 real time oscillators and four channels of digital-to-audio output has been constructed as a preliminary test system for a more sophisticated and larger scale real-time digital synthesizer, to be constructed for the Electroacoustics Department at I.R.C.A.M. This system has been in operation at I.R.C.A.M. since August 1976. Fine temporal control of the amplitude, frequency, and phase of each virtual oscillator is provided by a PDP 11/40 computer at a 100 KHz data rate. The central feature of the system is single time-shared table lookup digital oscillator and amplitude modulator. In this oscillator the computing time for one sample and its amplitude scaling is 250 nano seconds. A 1K x 12 bit random access memory (RAM) can store any waveform supplied by the user via the computer. This waveform table can be rewritten in 10 milliseconds. A 256 x 24 bit RAM is provided for storing frequency data, another for storing phase data, and a 256 x 12 bit RAM is provided for storing amplitude data. The sampling rate is 4 MHz/(Number of oscillators). The frequency resolution in Hz is $0.256/(\text{Number of oscillators})$. The number of oscillators is programmed by steps of powers of 2 from 4 to 256.

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biographie/biography/biografia -----

1937	born in Bengasi
1961	"laureato" in physics, Università di Roma
1961-71	research in Elementary Partical Physics
1972-77	research on new types of real-time digital synthesizers controlled by computer

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