

Электрокардиограф

CARDIETTE Start 100



1997

ACQUISITION AND CPU BOARD FOR ECG 3C START 100

P_N 20001725 I SERIES
 P_N 20001940 II SERIES
 P_N 20002015 III SERIES

SOFTWARE FOR ECG 3 C:

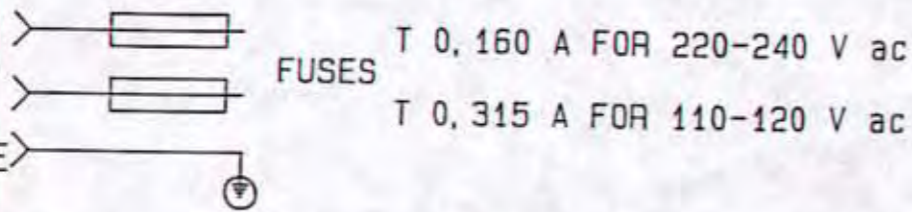
P_N 27000098 START 100 P I SERIES
 P_N 27000110 START 100 P II SERIES
 P_N 27000112 START 100 P II SERIES WITHOUT RUSSIAN
 P_N 27000109 START 100 H

FUNCTIONS OF BOARD:

- CF TYPE ISOLATED ECG AMPLIFIER
- CPU CIRCUIT FOR CONTROL AND SIGNAL PROCESSING
- POWER SUPPLY CIRCUIT
- PRINTER CONTROLLER CIRCUIT
- SPEED MOTOR CONTROL CIRCUIT
- KEYBOARD INTERFACE
- A_D CONVERTER 12 BITS

ECG IN →

AC POWER
 SUPPLY
 PROTECTIVE
 HEART



20 WIRES

KEYBOARD P_N 20001728

SWITCHES AND LEDS

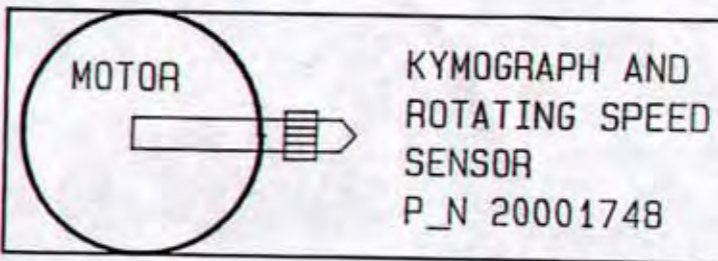
8 WIRES

THERMAL PRINT HEAD
 P_N 20001749

5 WIRES

PAPER AND MARK SENSOR
 P_N 20001729

6 WIRES



INTERNAL ACCU 12V 0,8 Ah
 P_N 17000272

UFF. TECNICO

12 NOV. 1997

electronica trentina spa **CAVARENO**

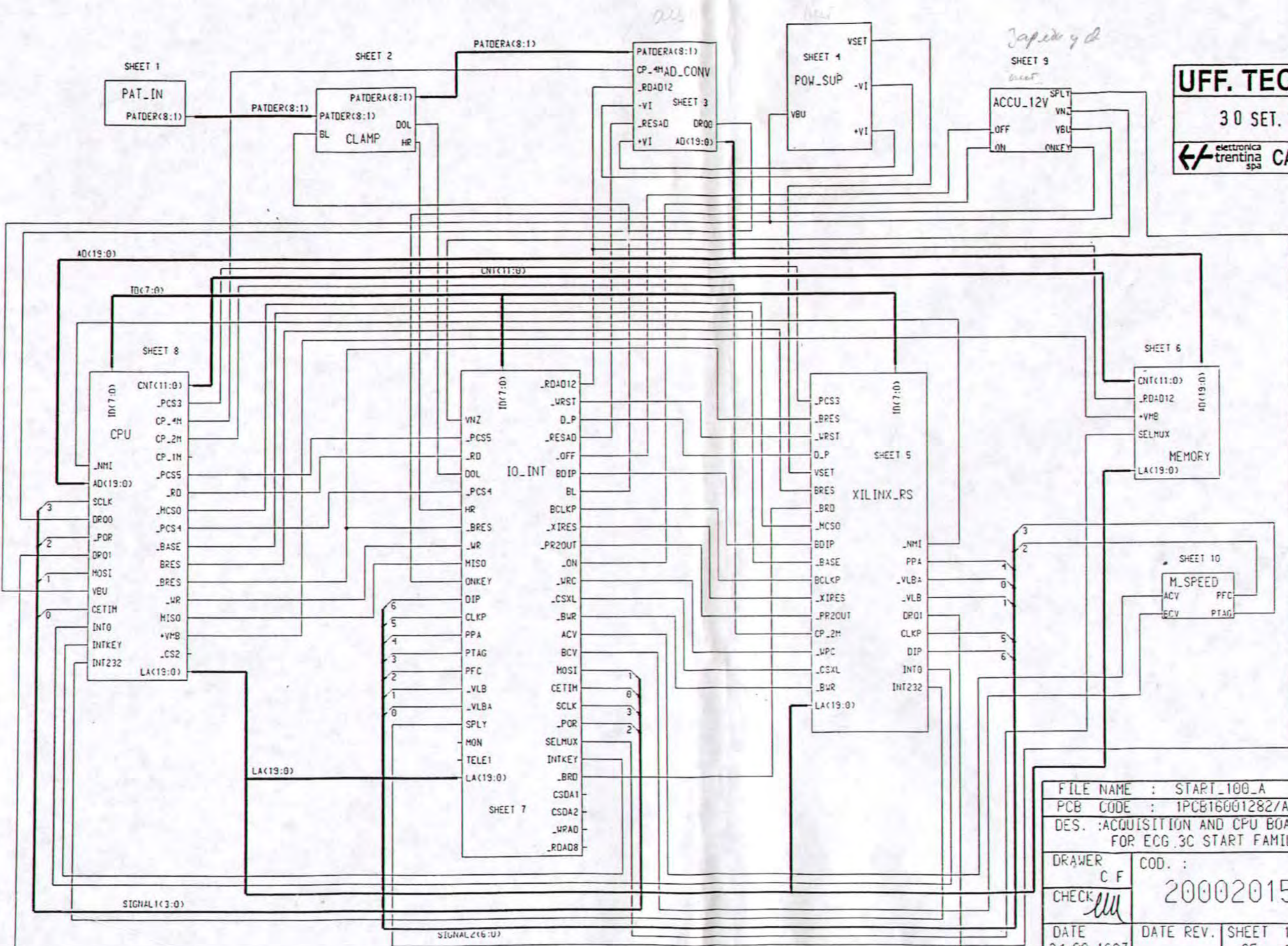
FILE NAME : START100.SCH
 DES.: BLOCK DIAGRAM FOR ECG 3 C
 START 100 FAMILY I-II-III S.

DRAWER AS COD.: 30500052-59-60-62

CHECK *llm*

DATE 10.11.97 DATE REV. SHEET 1 OF 1

electronica trentina spa
 ALL RIGHTS RESERVED



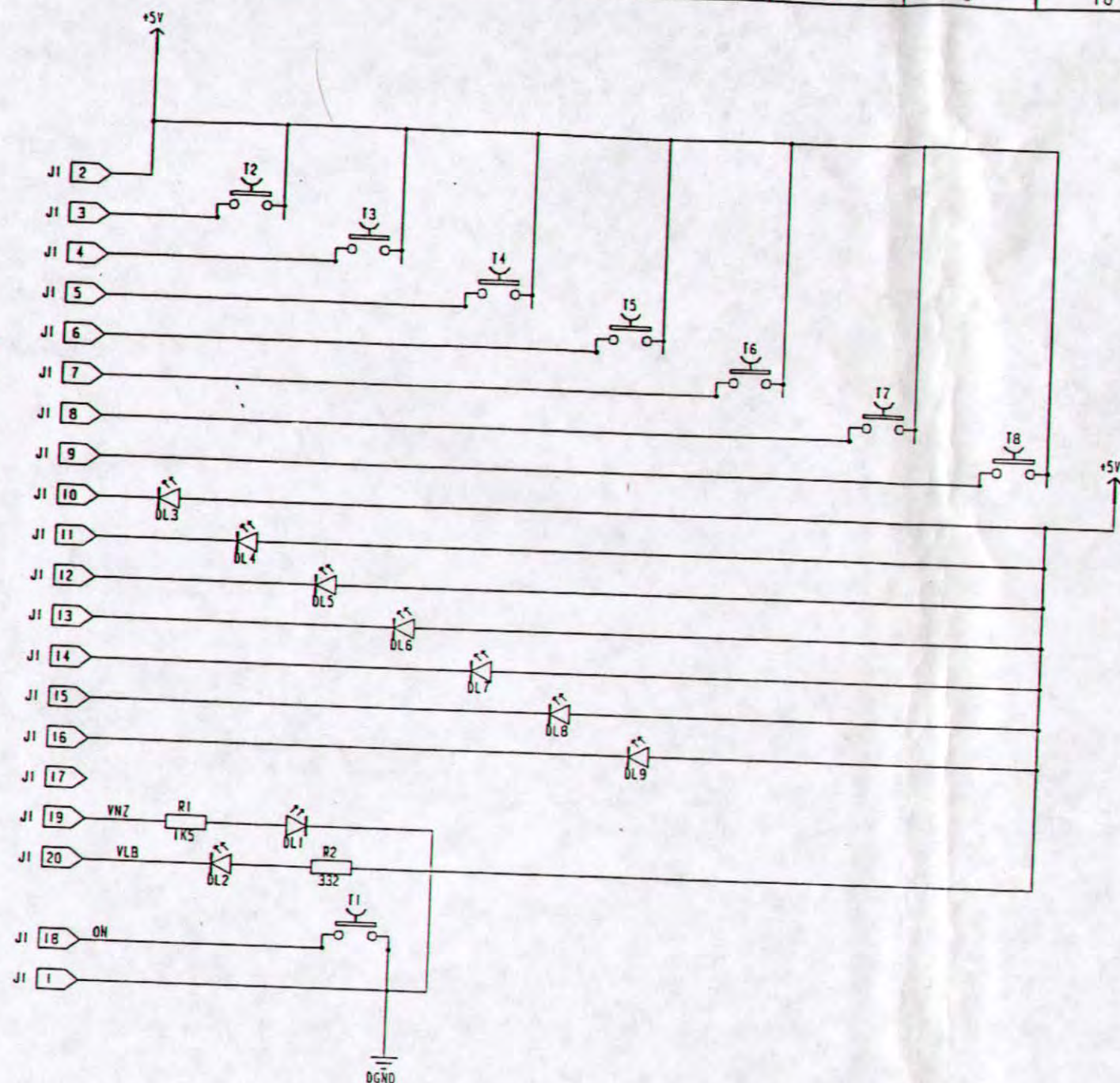
UFF. TECNICO
 30 SET. 1997
 elettronica trentina spa CAVARENO

FILE NAME : START_100_A
 PCB CODE : IPCB16001282/A
 DES. : ACQUISITION AND CPU BOARD
 FOR ECG_3C START FAMILY

DRAWER C F
 CHECK *mm*
 DATE 24.09.1997
 COD. : 20002015
 DATE REV. SHEET 11 OF 13

electronica trentina spa
 ALL RIGHTS RESERVED

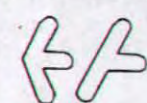
TO MOTHER BOARD

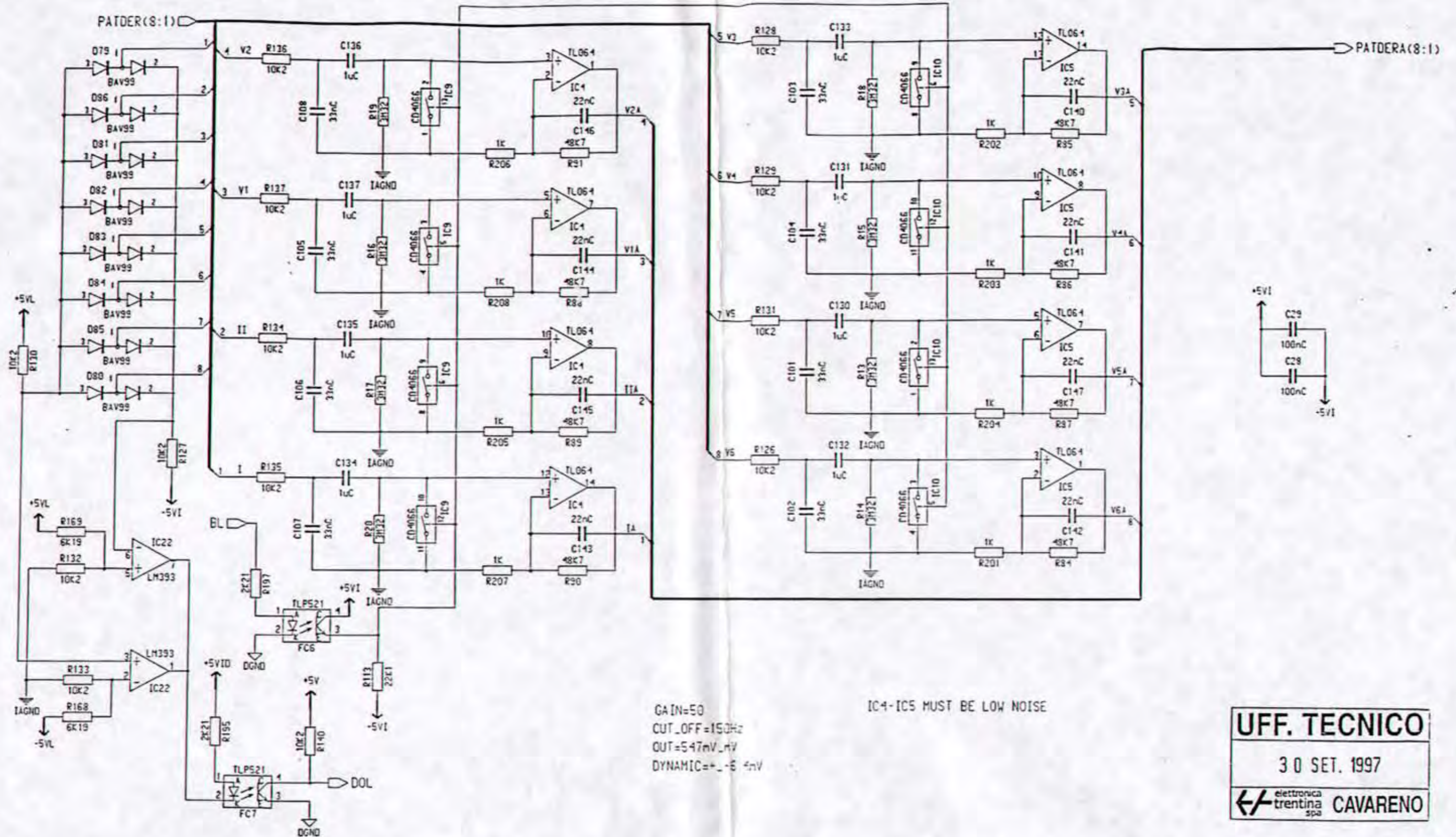


- T1 ON-OFF
- T2 AUTO
- T3 MAN
- T4 STOP
- T5 COPY
- T6 SPEED
- T7 AMP
- T8 FILTER

- DL1 MAINS
- DL2 LOW BATTERY
- DL3 AMP 10 mm/mV
- DL4 0L
- DL5 VEL 50 mm/sec
- DL6 AMP 5 mm/mV
- DL7 ADF
- DL8 VEL 25 mm/sec
- DL9 F 50 Hz

UFF. TECNICO
 - 4 NOV. 1997
 elettronica trentina spa CAVARENO

FILE NAME : TAS START I		 elettronica trentina spa ALL RIGHTS RESERVED
PCB CODE : 16001284		
DES. : SIMPLE KEYBOARD FOR ECG START 100		COD. : 20001728
DRAWER Fanti L.	CHECK <i>[Signature]</i>	
DATE 02.07.96	DATE REV.	SHEET 01 OF 03
13	14	15
16	15	16



GAIN=50
 CUT_OFF=150Hz
 OUT=547mV_{rms}
 DYNAMIC=±1.5 mV

IC4-IC5 MUST BE LOW NOISE

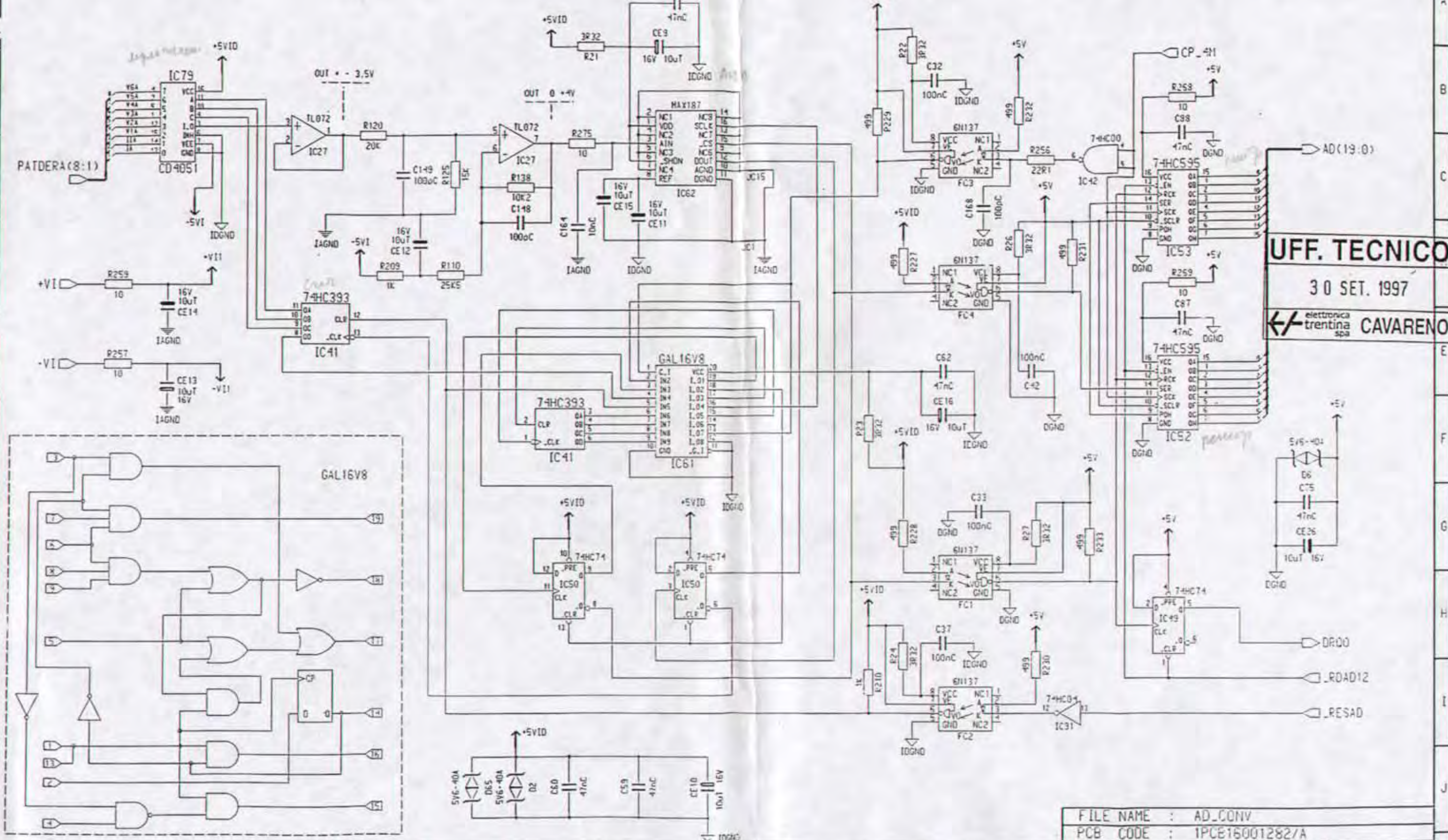
UFF. TECNICO
 30 SET. 1997
 elettronica trentina spa **CAVARENO**

UNUSED GATE/S

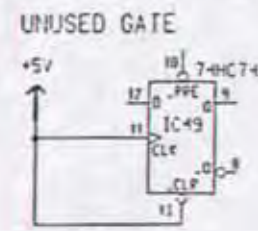
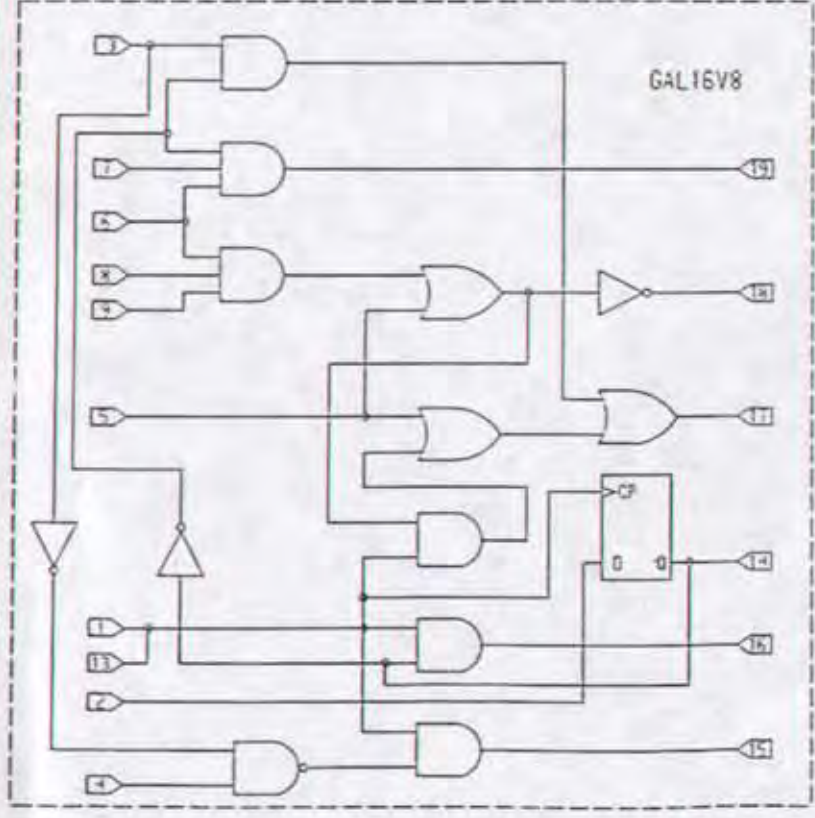
REF. DES	DEVICE	POWER PINS				REF. DES	DEVICE	POWER PINS			
		+5VI	-5VI	---	---			VCC	GND	VDD	VEE
IC4	TL064	4	11								
IC5	TL064	4	11								
IC6	TL064	4	11								
IC7	TL064	4	11								
IC9	CD4066	14	7								
IC10	CD4066	14	7								

FILE NAME : CLAMP	
PCB CODE : IPCB16001282/A	
DES. : ACQUISITION AND CPU BOARD FOR ECG 3C START FAMILY	
DRAWER C F	COD. :
CHECK <i>llm</i>	20002015
DATE 24.03.1997	DATE REV. SHEET 2 OF 13

electronica trentina spa
 ALL RIGHTS RESERVED



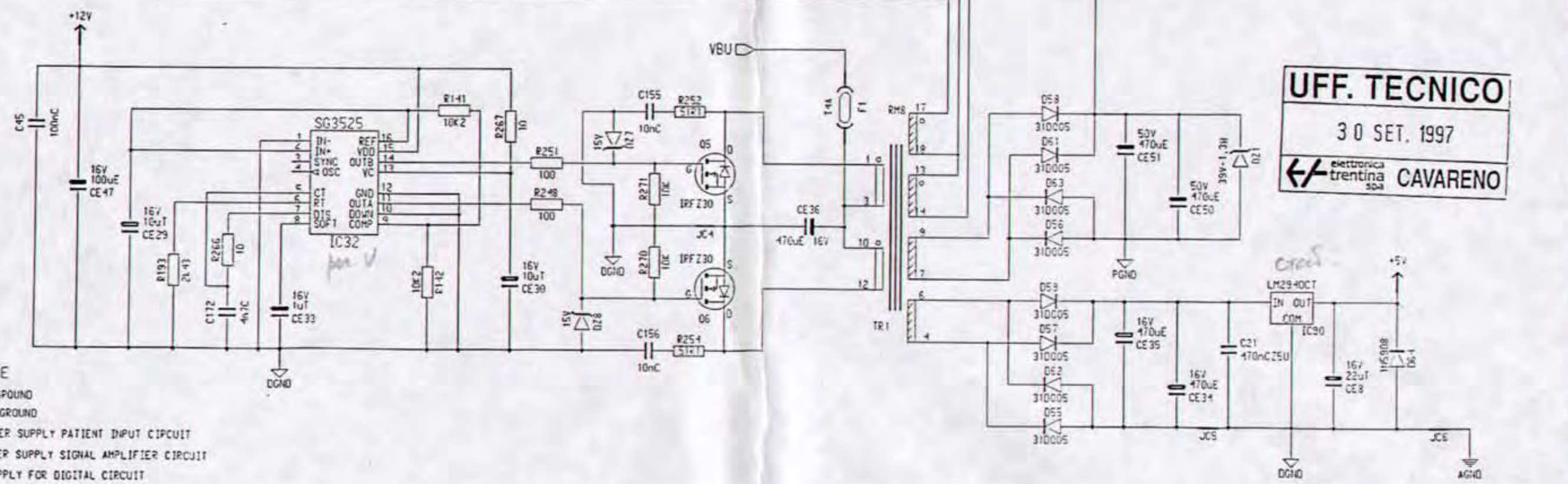
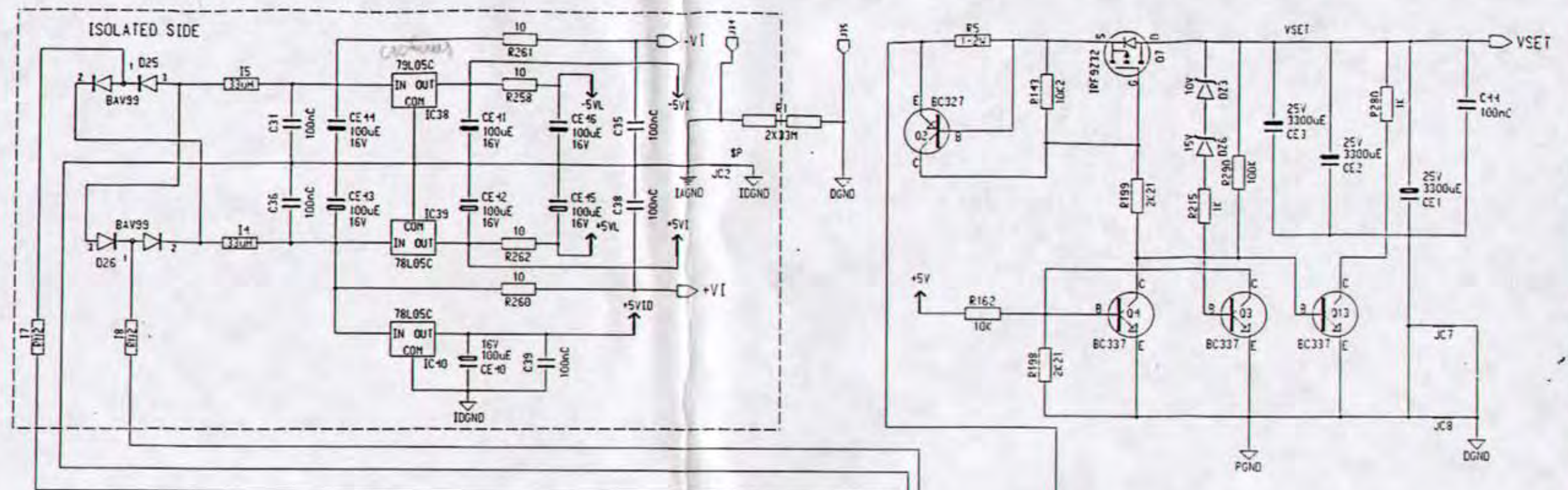
UFF. TECNICO
 30 SET. 1997
 elettronica trentina spa
CAVARENO



REF. DES	DEVICE	POWER PINS				REF. DES	DEVICE	POWER PINS					
		+5VID	IDGND	+5V	DGND			+5V	DGND	+V11	-V11		
IC?	74HC04			14	7	IC?	TL072			14	7	8	4
IC?	74HC74			14	7	IC?	74HC74			14	7		
IC?	74HC393	14	7			IC?							
IC?	74HC74	14	7			IC?							

FILE NAME : AD_CONV
 PCB CODE : 1PCE16001282/A
 DES. : ACQUISITION AND CPU BOARD FOR ECG 3C START FAMILY
 DRAWER C F
 CHECK *ellu* COD. : 20002015
 DATE 24.09.1997 DATE REV. SHEET 3 OF 13
 ALL RIGHTS RESERVED





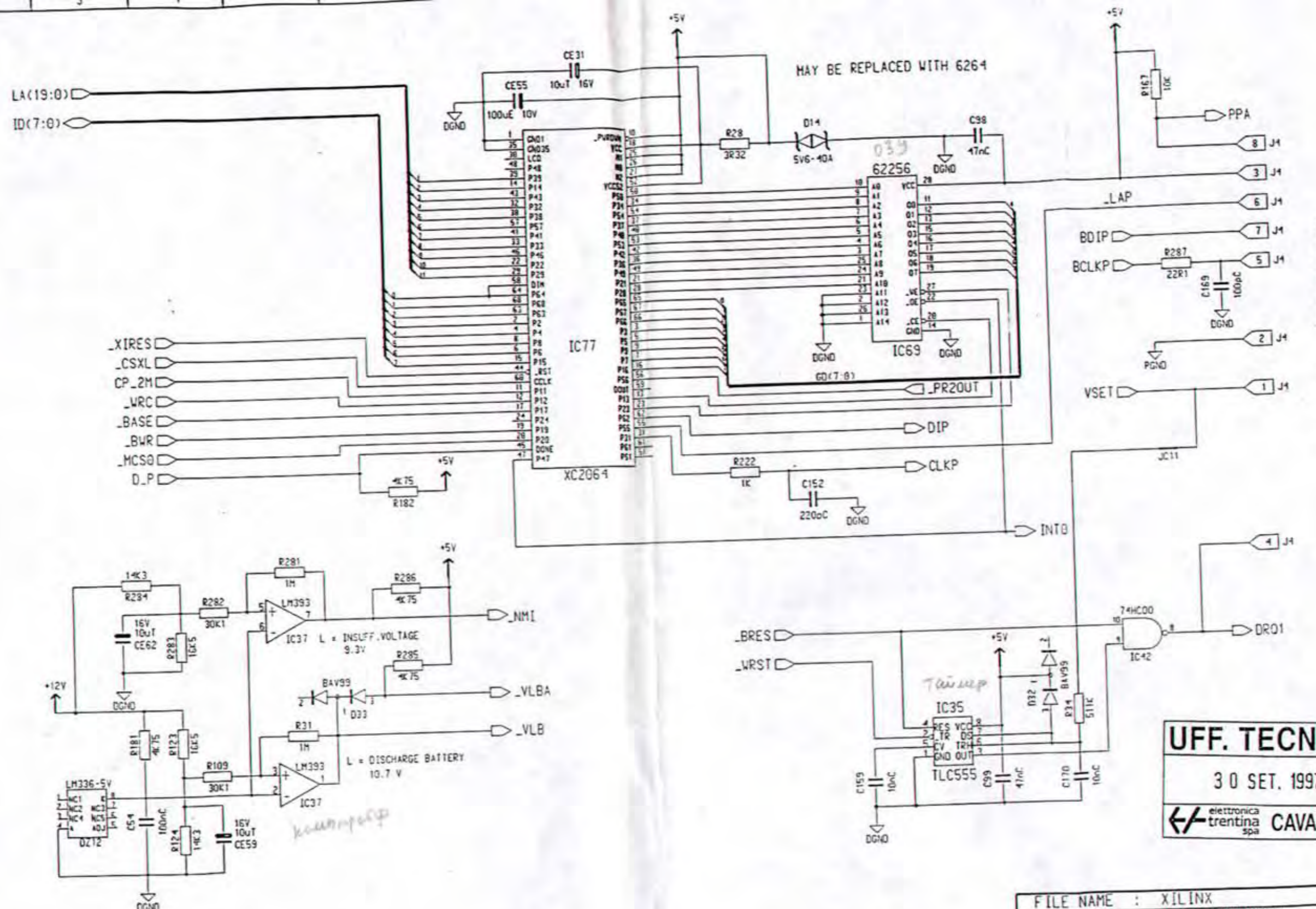
UFF. TECNICO
 30 SET. 1997
 elettronica trentina spa CAVARENO

ISOLATED SIDE
 IAGND : ANALOG GROUND
 IDGND : DIGITAL GROUND
 +5VL -5VL : POWER SUPPLY PATIENT INPUT CIRCUIT
 +5VI -5VI : POWER SUPPLY SIGNAL AMPLIFIER CIRCUIT
 +5VID : POWER SUPPLY FOR DIGITAL CIRCUIT

NON ISOLATED SIDE
 DGND : DIGITAL GROUND
 PGND : GROUND THERMAL PRINT HEAD
 +5V : POWER SUPPLY DIGITAL CIRCUIT
 +5VA -5VA : POWER SUPPLY ANALOG SIGNAL CIRCUIT
 VCET : POWER SUPPLY THERMAL PRINT HEAD

REF. DES	DEVICE	POWER PINS				REF. DES	DEVICE	POWER PINS			
		VCC	GND	VDD	VEE			VCC	GND	VDD	VEE

FILE NAME : POW.SUP
 PCB CODE : IPCB16001282/A
 DES. : ACQUISITION AND CPU BOARD FOR ECG 3C START FAMILY
 DRAWER C F COD. : 20002015
 CHECKED *llu*
 DATE 24.09.1997 DATE REV. SHEET 4 OF 13
 elettronica trentina spa
 ALL RIGHTS RESERVED

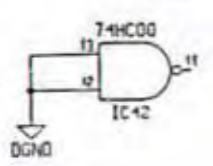


UFF. TECNICO
 30 SET. 1997
 elettronica trentina spa CAVARENO

FILE NAME :	XILINX
PCB CODE :	1PCB16001282/A
DES. :	ACQUISITION AND CPU BOARD FOR ECG 3C START FAMILY
DRAWER :	F C
COD. :	20002015
DATE :	24.09.1997
DATE REV. :	
SHEET :	5 OF 13

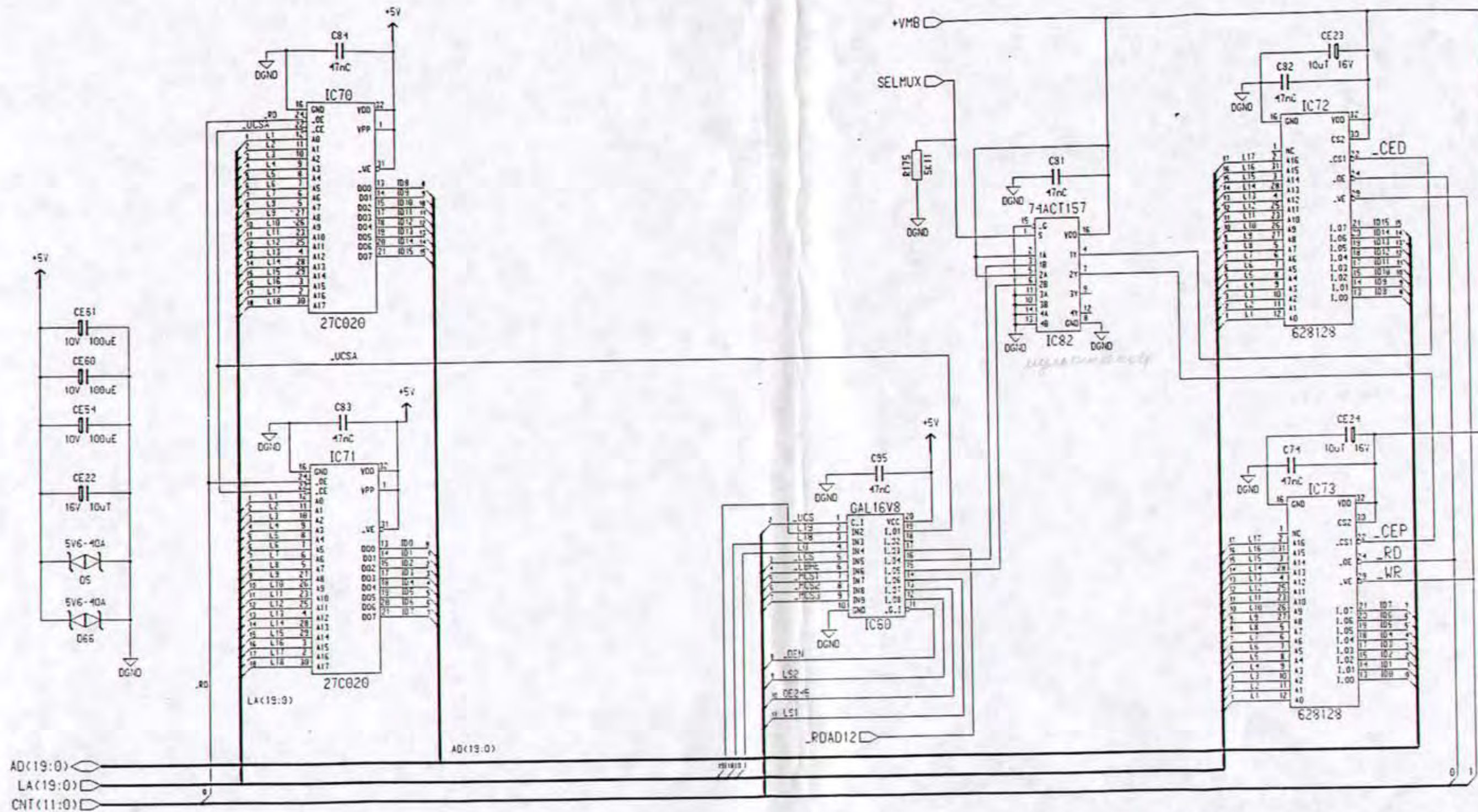
REF. DES	DEVICE	POWER PINS				REF. DES	DEVICE	POWER PINS			
		5V	DGND	12V	VEE			VCC	GND	VDD	VEE
IC?	74HC04	14	7								
IC?	74HC00	14	7								
IC?	LM393			4	8						

UNUSED GATE/S



TO THERMAL PRINT HEAD

B
C
D
E
F
G
H
I
J
K
L



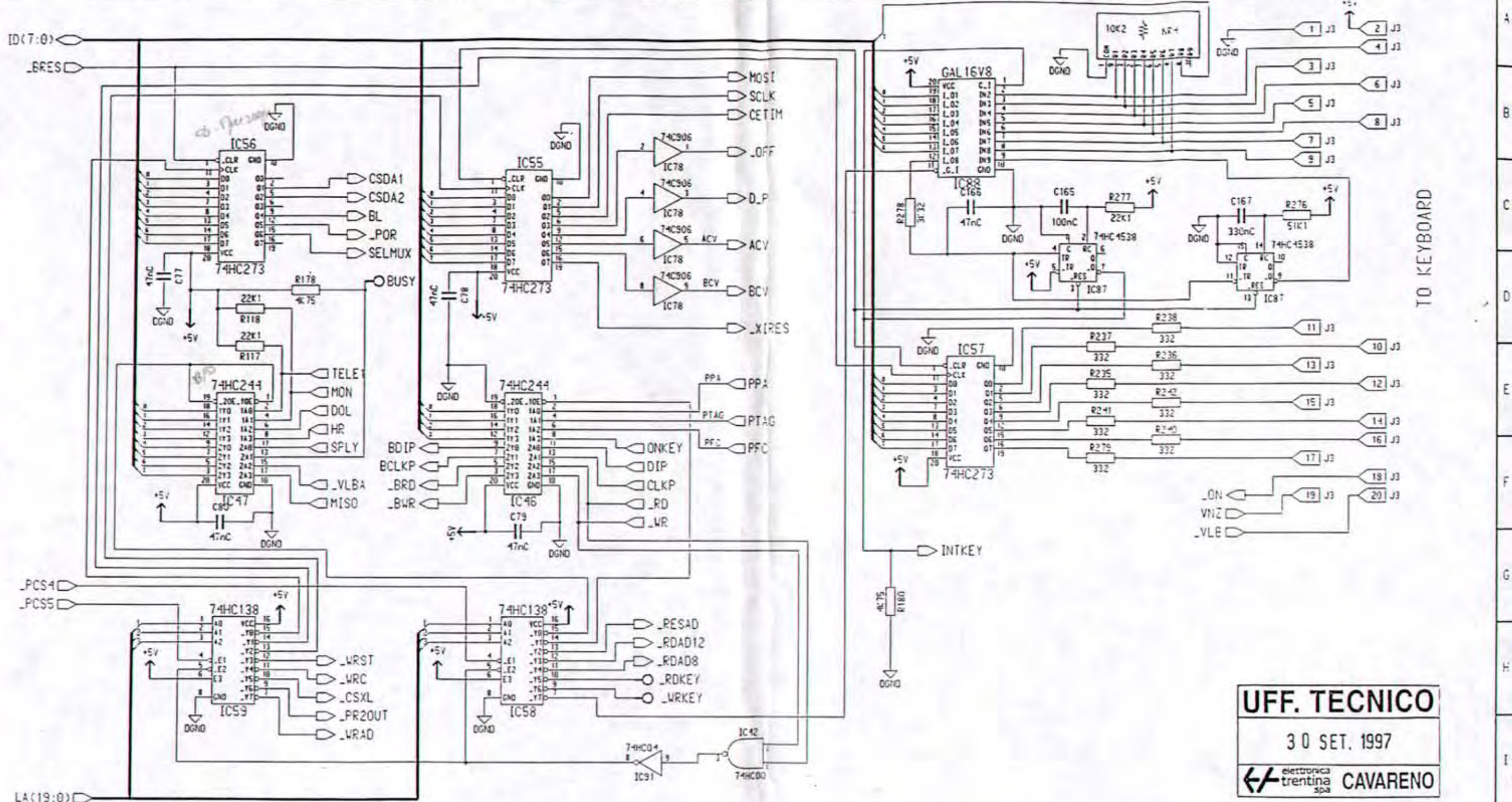
UFF. TECNICO

30 SET. 1997

electronica trentina spa CAVARENO

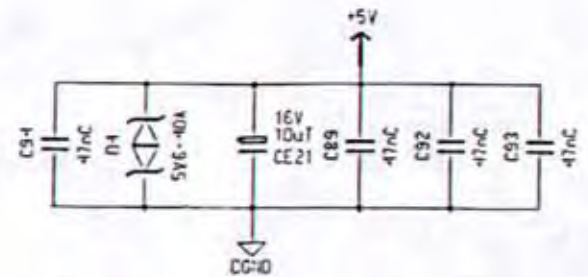
FILE NAME : MEMORY	
PCB CODE : 1PCB16001282/A	
DES. : ACQUISITION AND CPU BOARD FOR ECG 3C START FAMILY	
DRAWER C F	COD. :
CHECK <i>ellu</i>	20002015
DATE 24.09.1997	DATE REV. SHEET 6 OF 13

electronica trentina spa
ALL RIGHTS RESERVED



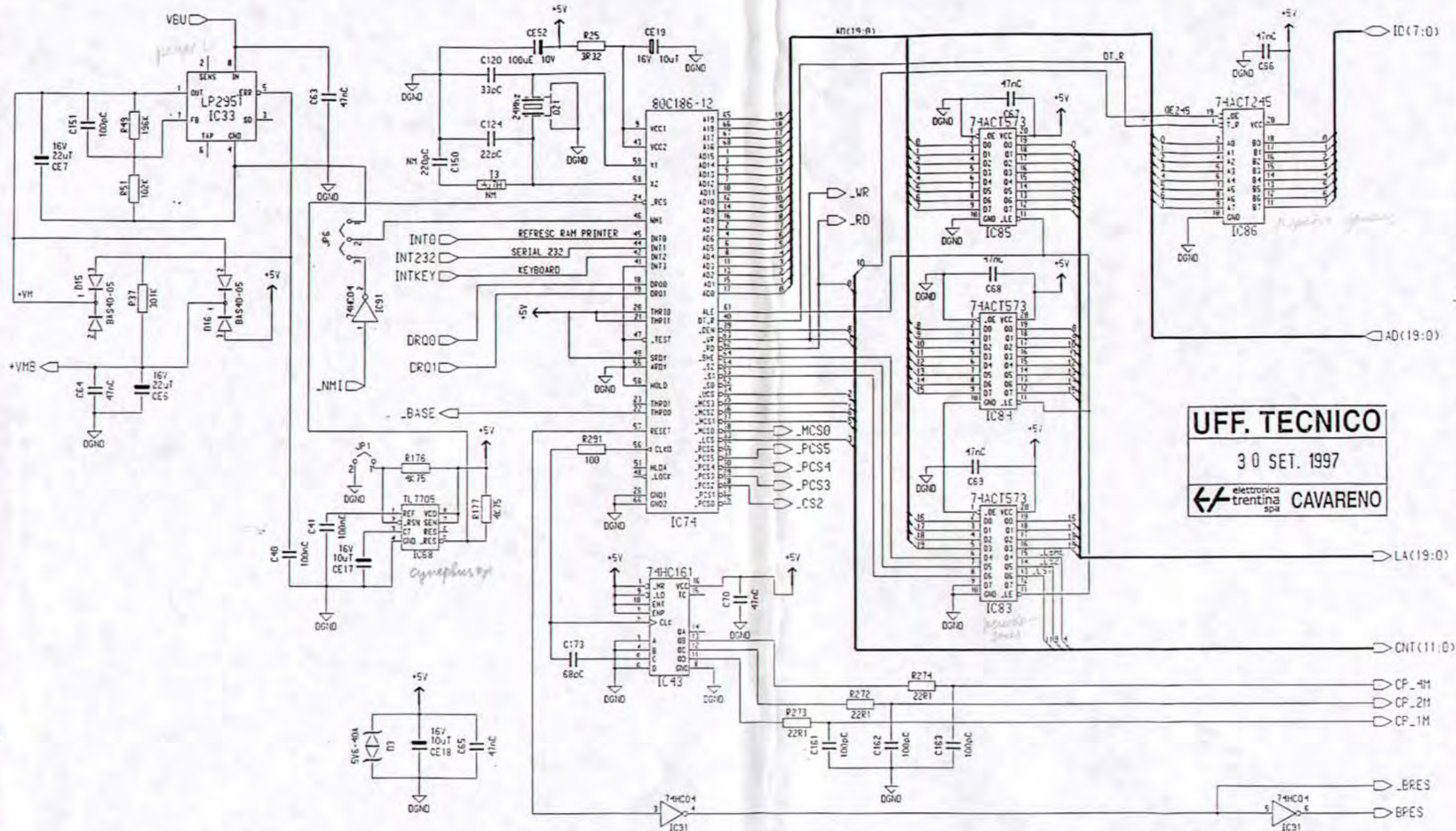
TO KEYBOARD

UFF. TECNICO
 30 SET. 1997
 elettronica trentina spa **CAVARENO**



UNUSED GATE/S	REF. DES	DEVICE	POWER PINS			
			+5V	DGND	--	--
	IC78	74C906	14	7		

FILE NAME : IO_INT		
PCB CODE : IPCB16001282/A		
DES. : ACQUISITION AND CPU BOARD FOR ECG 3C START FAMILY		
DRAWER C F	COD. :	
CHECK <i>lll</i>	20002015	
DATE 24.09.1997	DATE REV.	SHEET 7 OF 13
ALL RIGHTS RESERVED		



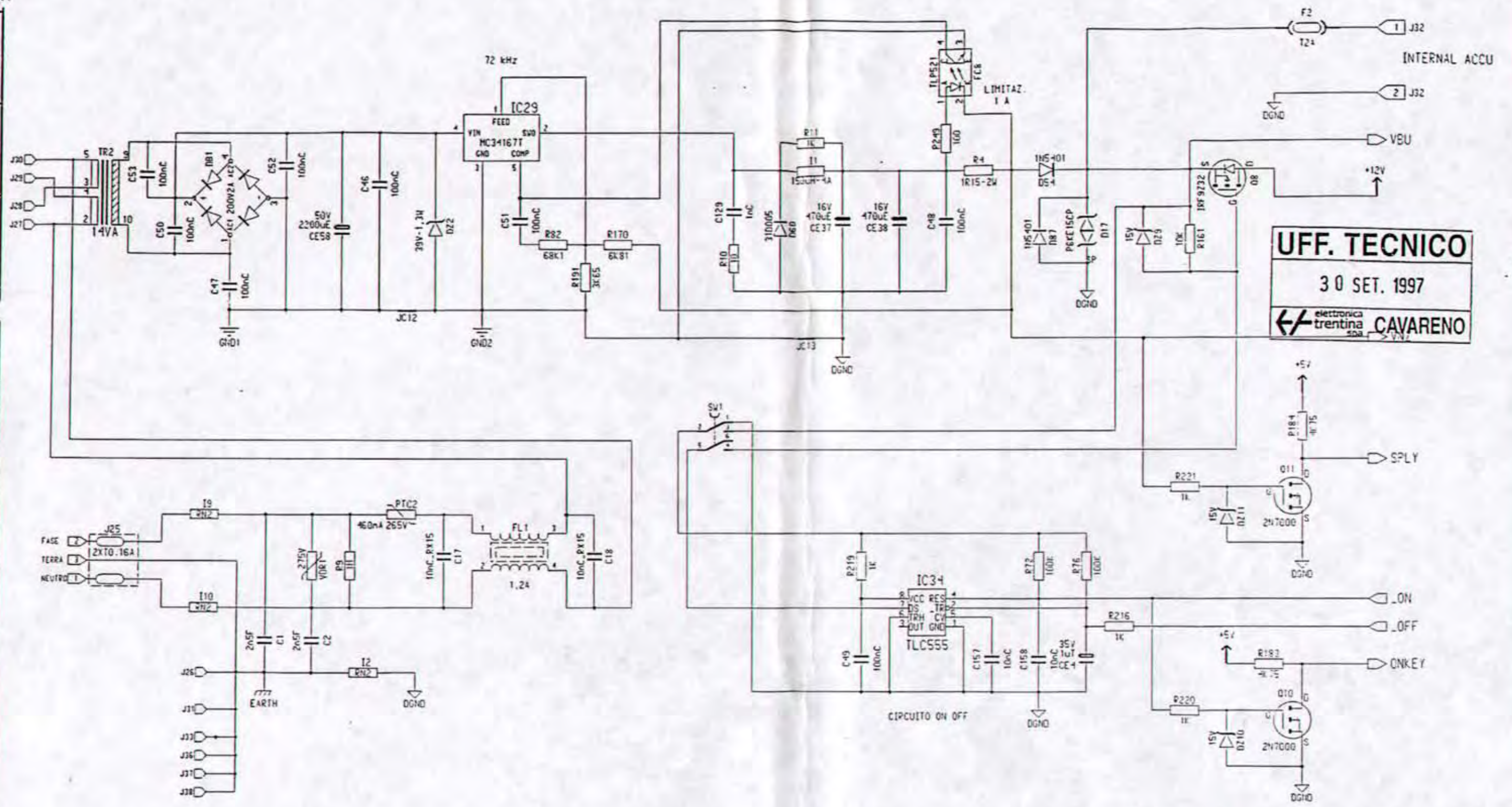
UFF. TECNICO
 30 SET. 1997
 elettronica trentina spa CAVARENO

UNUSED GATE/S
 NH = NOT MOUNTED

REF. DES	DEVICE	POWER PINS				REF. DES	DEVICE	POWER PINS					
		VCC	GND	VDD	VEE			+5V	DGND	VDD	VEE		
						IC?	74HC04	14	7				

FILE NAME :	CPU
PCB CODE :	1PCB16001282/A
DES. :	ACQUISITION AND CPU BOARD FOR ECG 3C START FAMILY
DRAWER :	C F
COD. :	20002015
CHECKED :	<i>llly</i>
DATE :	24.09.1997
DATE REV. :	
SHEET :	8 OF 13

electronica trentina spa
 ALL RIGHTS RESERVED



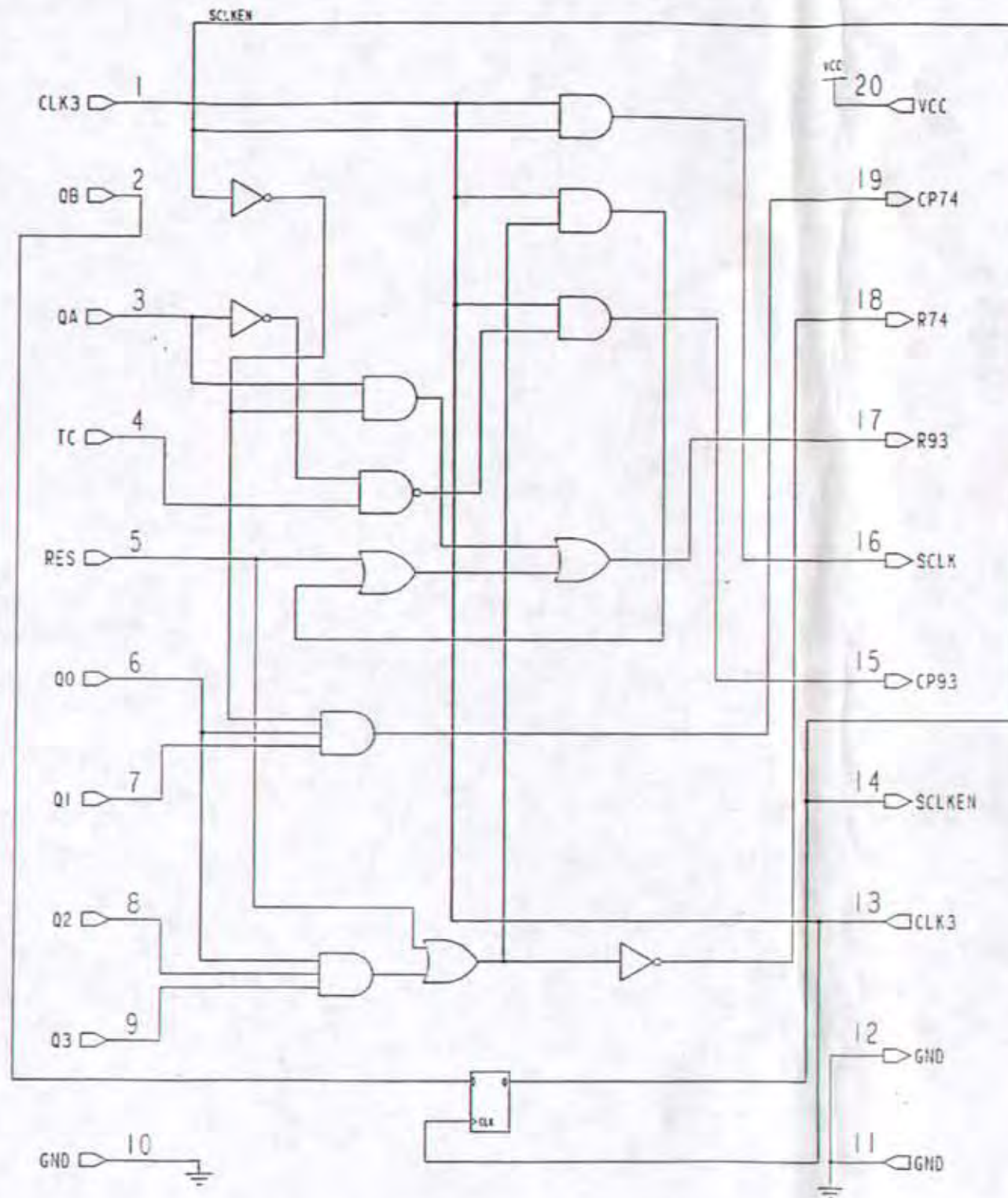
UFF. TECNICO
 30 SET. 1997
 elettronica trentina spa CAVARENO

FILE NAME : ACCU_12V
 PCB CODE : 1PCB16001282/A

MAIN (V ac)	FUSES	PTC2 (mA)	VDR1 (Volt)	CONNECTION	REF. DES	DEVICE	POWER PINS					
							VCC	GND	VDD	VEE		
110 - 120	T0,315A	330 / 485	140	J29-J30 AND J27-J28								
120 - 240	T0,16A	140 / 205	275	J28 - J29								

DES. : ACQUISITION AND CPU BOARD FOR ECG 3C START FAMILY
 DRAWER C F COD. : 20002015
 CHECKED *mm*
 DATE 24.09.1997 DATE REV. SHEET 9 OF 13

electronica trentina spa
 ALL RIGHTS RESERVED



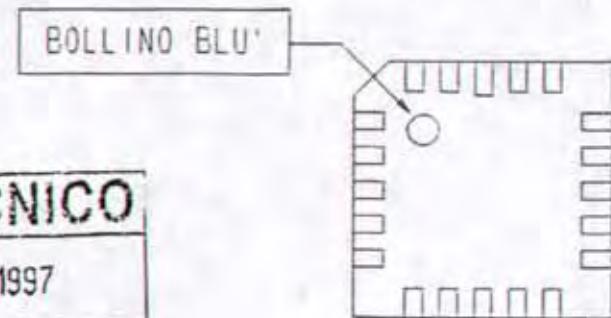
GENERIC ARRAY LOGIC GAL 16V8 P_N 12000713
 SUMCHECK = 4302

DISPOSITIVO PROGRAMMABILE PER LA GESTIONE
 DEL CONVERTITORE AD TIPO MAX187

DEFINIZIONE DELLE USCITE :

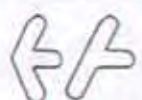
$$\begin{aligned}
 CP93 &= CLK3 + /((QA + TC)) \\
 SCLK &= CLK3 * SCLKEN \\
 R93 &= (QA + /SCLKEN) + (RES + (CLK3 * (RES + ANDQ3))) \\
 R74 &= /(RES + ANDQ3) \\
 CP74 &= Q0 + Q1 + /SCLKEN \\
 SCLKEN &:= QB
 \end{aligned}$$

NOTA : DOPO PROGRAMMATA MARCHIARE IL COMPONENTE
 CON UN PENNARELLO DI COLORE BLU'



COMPONENTE VISTO DA SOPRA

UFF. TECNICO
 - 4 NOV. 1997
 elettronica trentina spa **CAVARENO**

FILE NAME : ADC 187		 elettronica trentina spa ALL RIGHTS RESERVED
PCB CODE : NONE		
DES. : DISPOSITIVO PROGRAMMABILE PER GESTIONE ADC MAX 187		
DRAWER C F	COD. : 20001599	
CHECK <i>llm</i>		
DATE 04.12.1996	DATE REV.	SHEET 1 OF 2
13	14	15
1	2	3

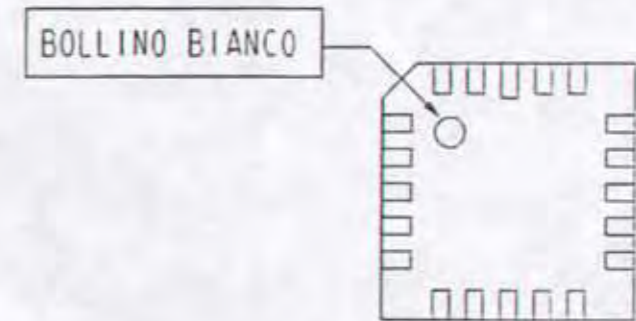
DISPOSITIVO PROGRAMMABILE PER LA GESTIONE DELLA TESTIERA SEMPLICE PER ECG TIPO

START 100

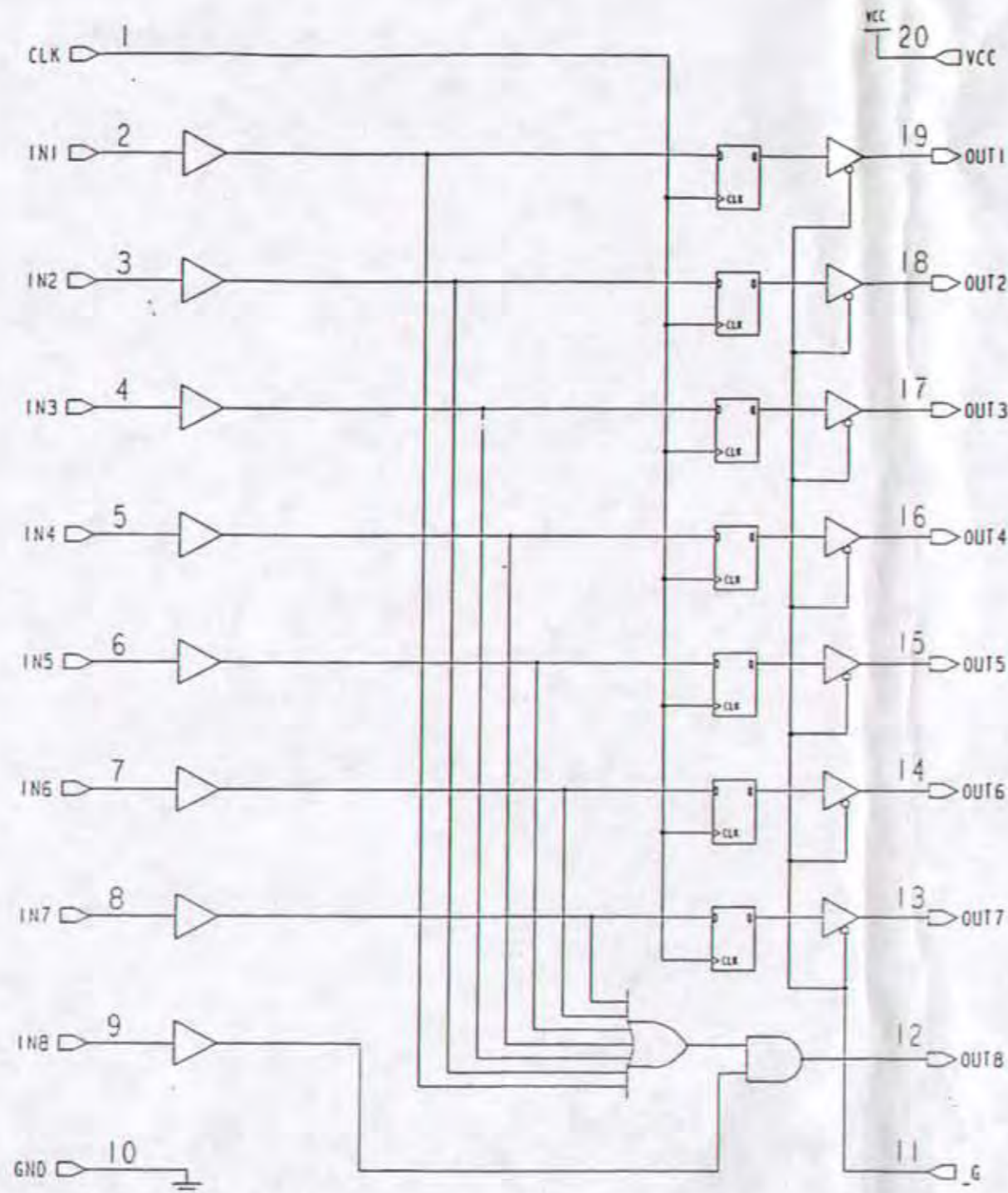
DEFINIZIONE DELLE USCITE :

- OUT1 := IN1
- OUT2 := IN2
- OUT3 := IN3
- OUT4 := IN4
- OUT5 := IN5
- OUT6 := IN6
- OUT7 := IN7
- OUT8 = IN1*IN8+IN2*IN8+IN3*IN8+IN4*IN8+IN5*IN8+IN6*IN8+IN7*IN8

NOTA : DOPO PROGRAMMATA MARCHIARE IL COMPONENTE CON UN PENNARELLO DI COLORE BIANCO



COMPONENTE VISTO DA SOPRA



UFF. TECNICO
- 4 NOV. 1997
electronica trentina spa CAVARENO

GENERIC ARRAY LOGIC GAL 16V8 P_N 12000713

SUMCHECK = 3015

FILE NAME : TAST 100		COD. :	
PCB CODE : NONE		20001722	
DES. : DISPOSITIVO PROGRAMMABILE PER GESTIONE TASTIERA			
DRAWER C F	DATE 04.12.1996	DATE REV.	SHEET 1 OF 2
CHECK <i>llm</i>	ALL RIGHTS RESERVED		electronica trentino spa