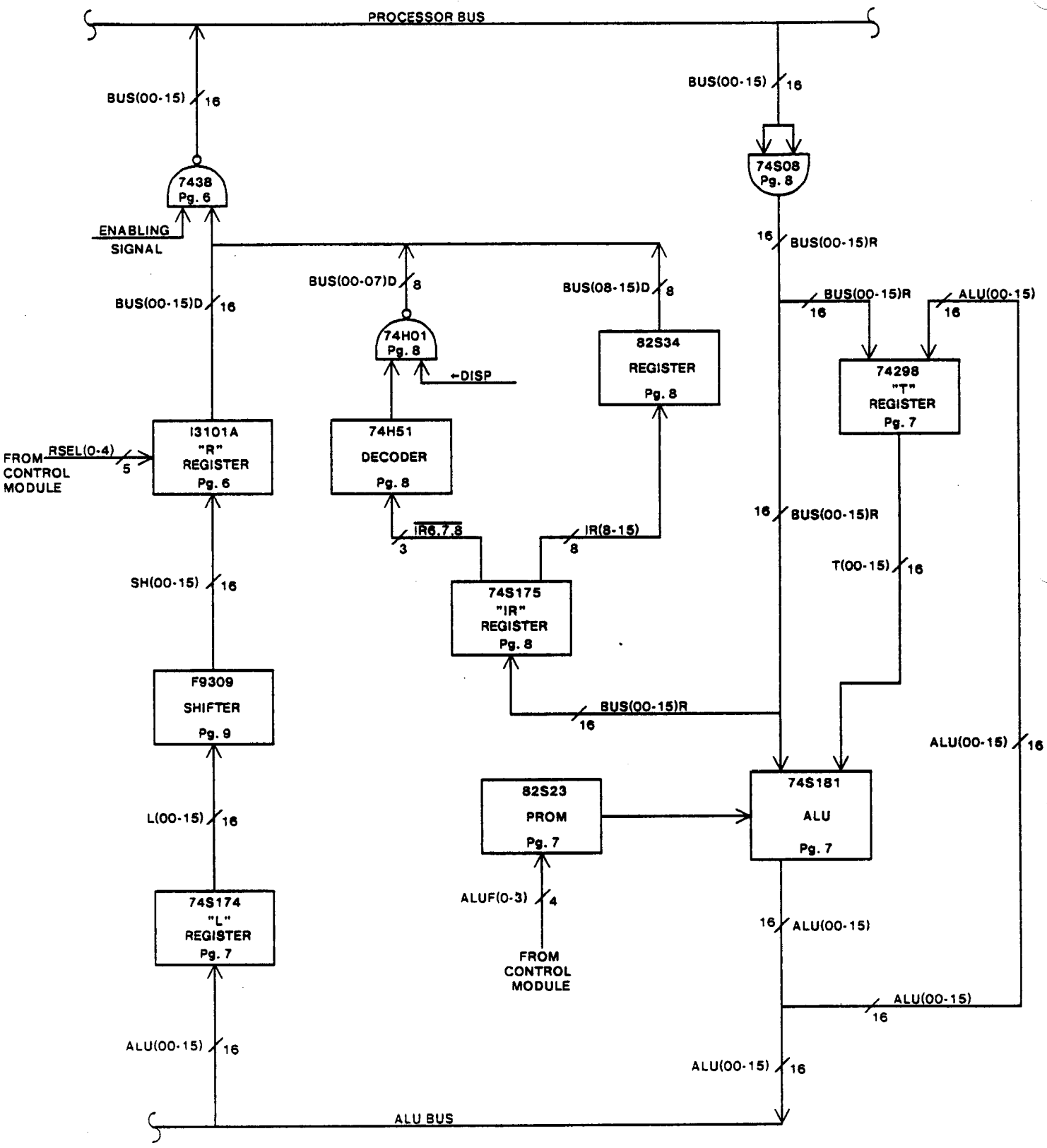
ARITHMETIC SECTION

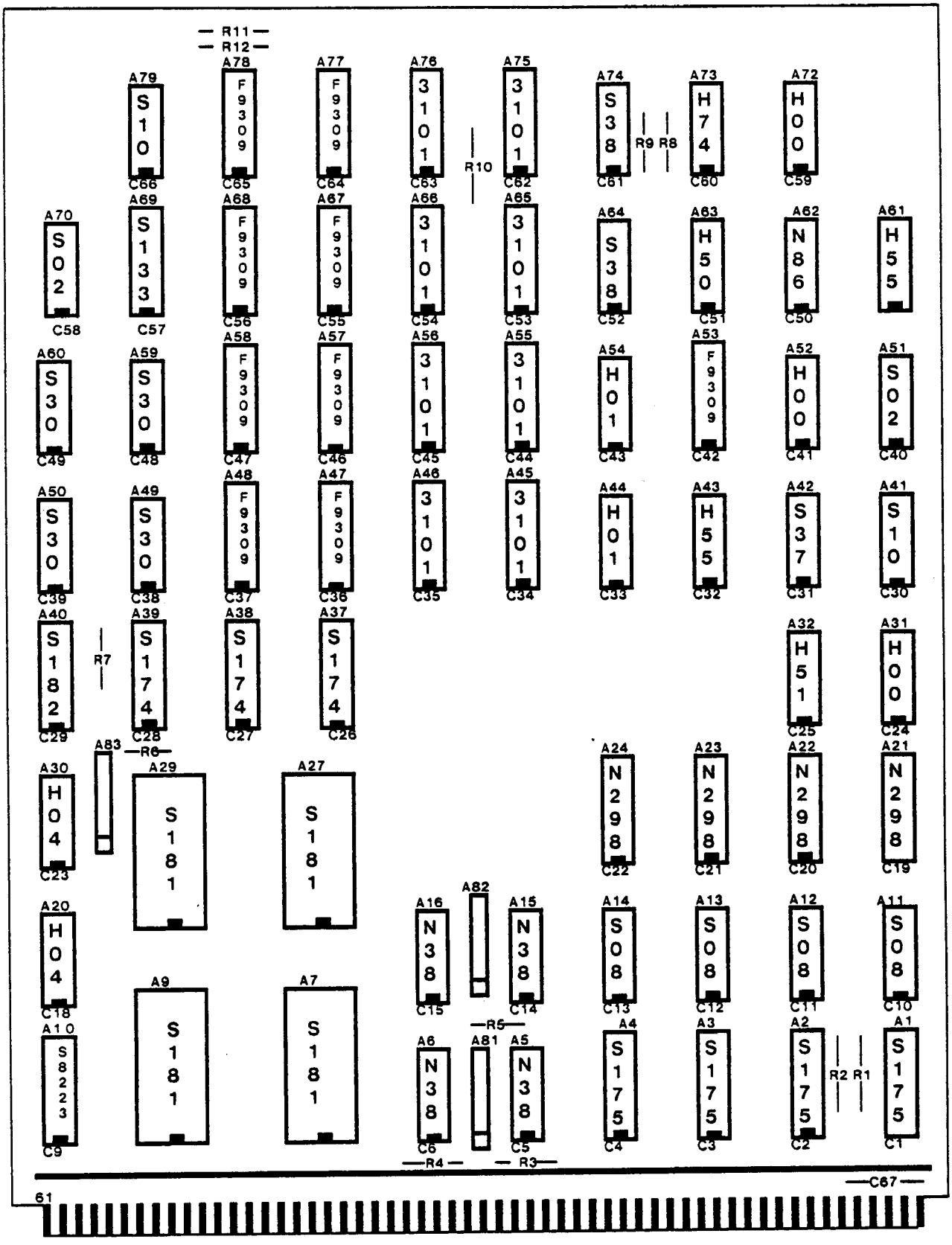
The arithmetic section of the processor consists of two 32-word by 16-bit register files R and S, and five registers, T, L, M, MAR, and IR. The registers are connected to the memory and to an ALU with a 16-bit parallel bus.

The ALU is a SN74181 type, restricted so that it can do only 16 arithmetic and logical functions. The ALU output feeds the L, M, and MAR registers. T may also be loaded from the ALU output under certain conditions. L is connected to a shifter capable of left and right shifts by one place, and cycles of 8. It has a mode in which it does the peculiar 17-bit shifts of the standard instruction set, and a mode which allows double-length shifts to be done.

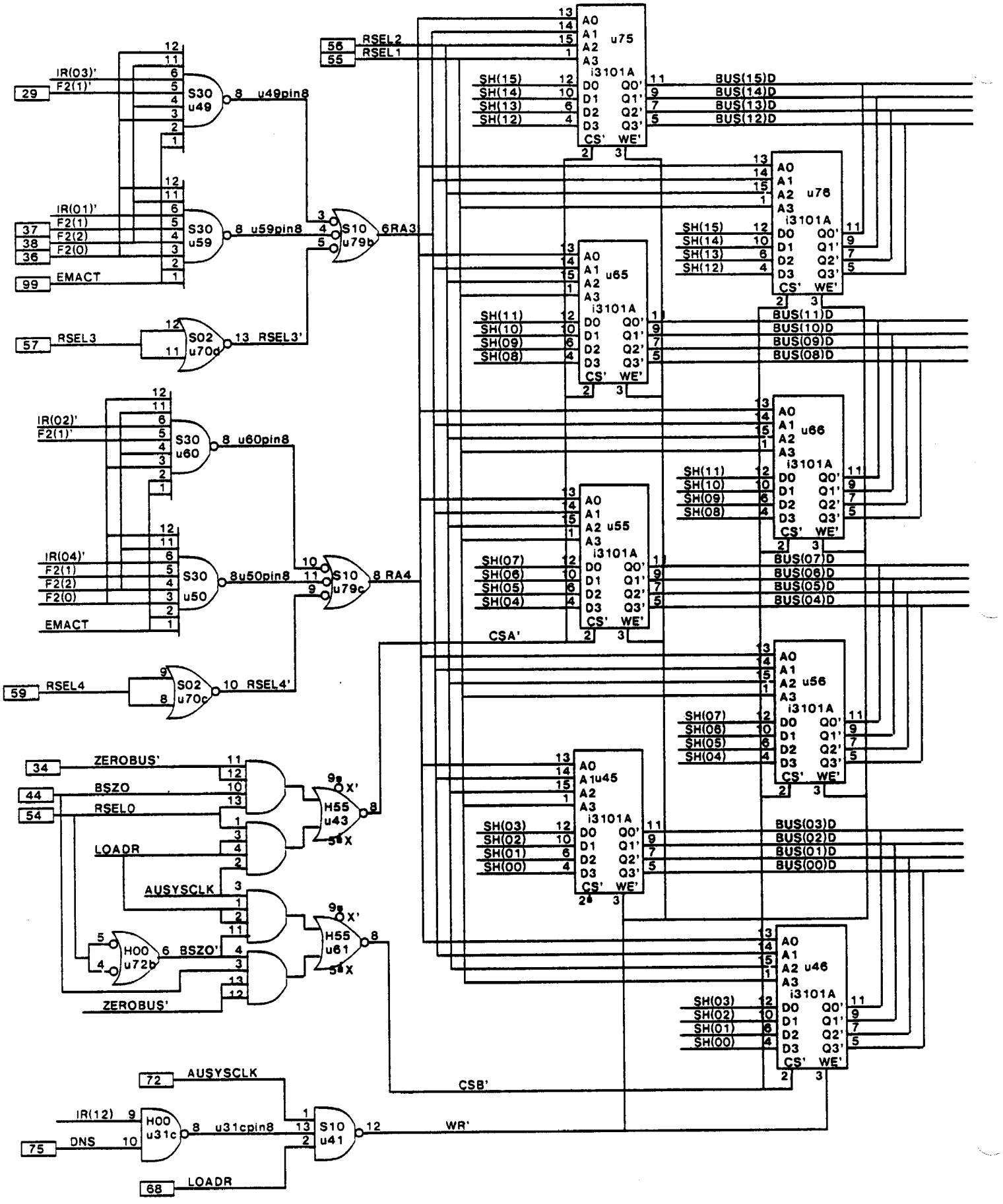
The IR register is used by the emulator to hold the current emulated instruction.

ARITHMETIC LOGIC UNIT
(ALU)

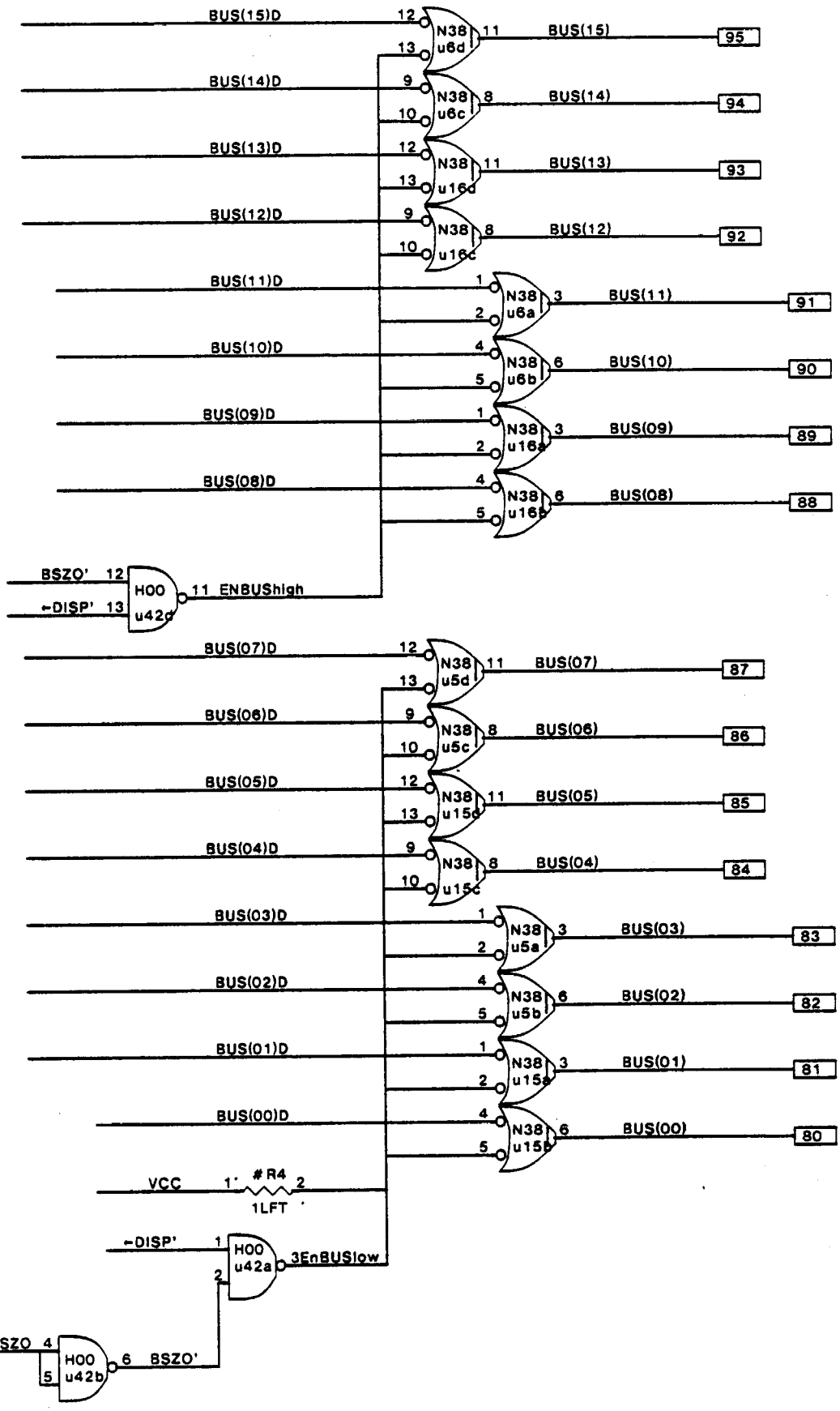




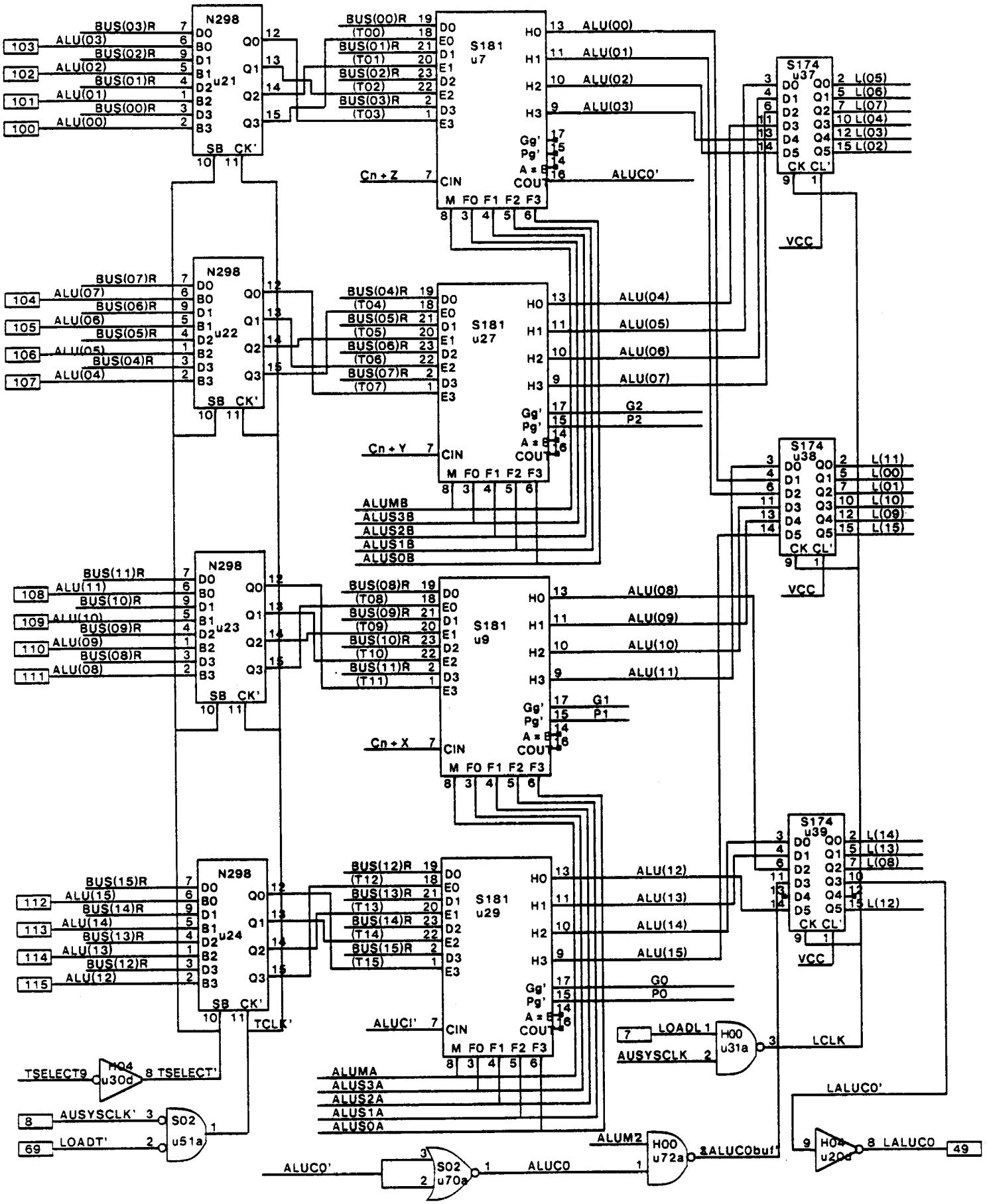
PROPRIETARY NOTE ON SHEET 1 APPLIES TO ALL SHEETS		FILE: ALU03.SIL	
TITLE ASSEMBLY, P.W. ARITHMETERIC LOGIC UNIT (ALU) MODULE	DWG. SIZE A41	DWG. NO. 218090 SHEET 3 OF 13	SHEET REV. A



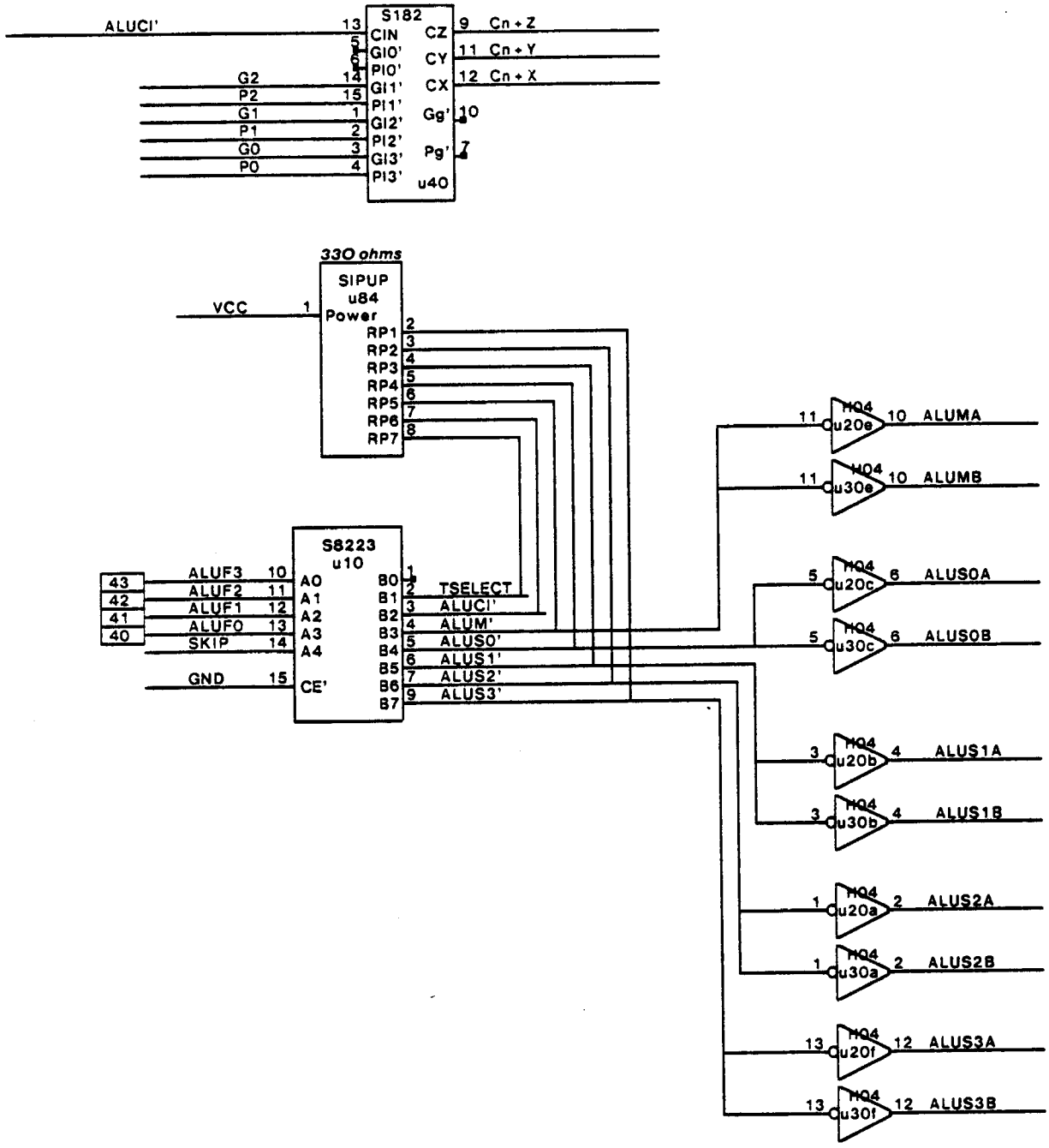
XEROX SPG	Project ALTO II	ASSEMBLY, P.W. ARITHMETRIC LOGIC UNIT	File ALU06.sil	Designer LEUNG	Rev A	Date 10/1/80	Page 6



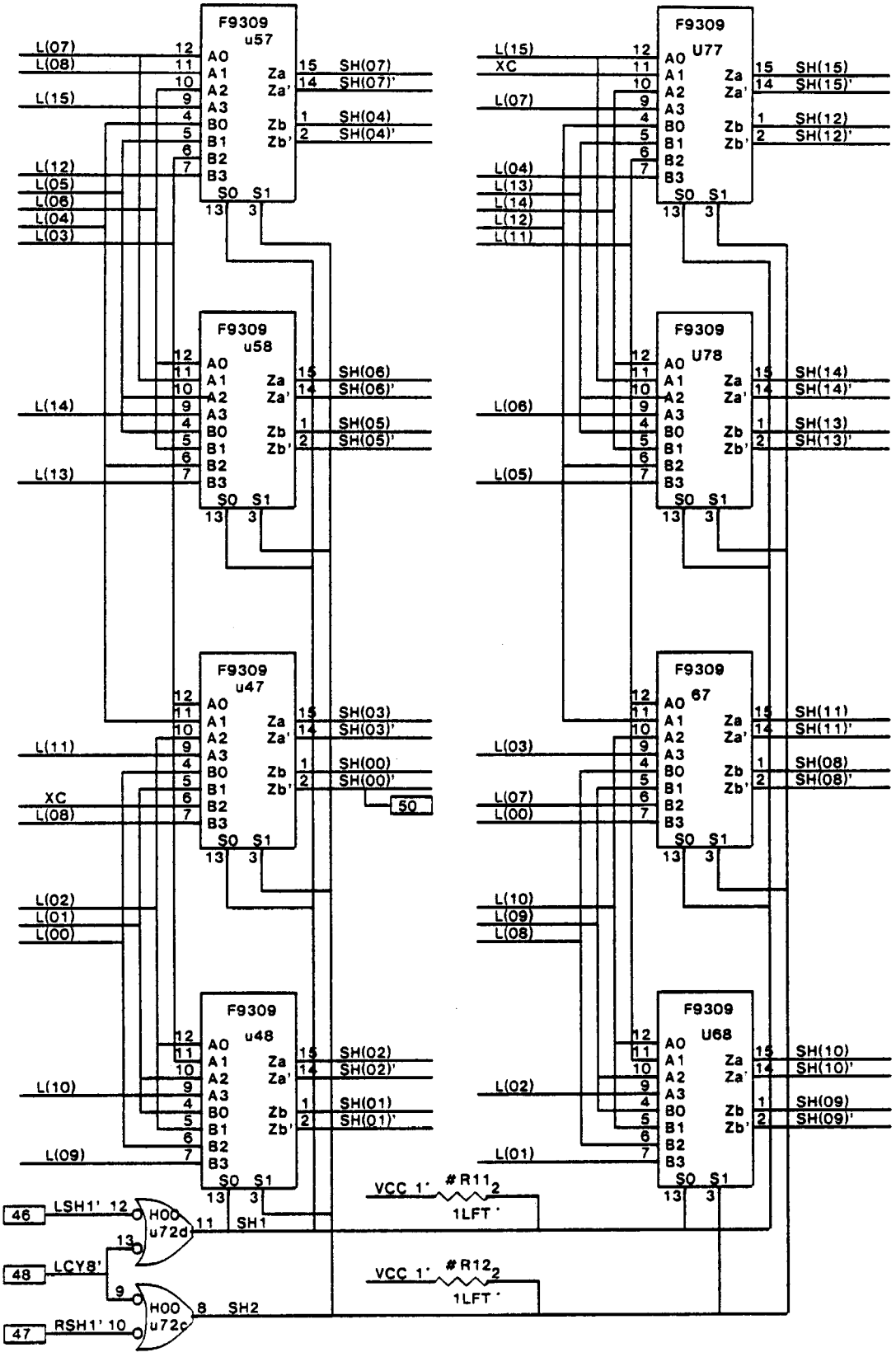
XEROX SPG	Project ALTO II	ASSEMBLY,P.W ARITHMETRIC LOGIC UNIT	File ALU07.sil	Designer LEUNG	Rev A	Date 10/1/80	Page 07



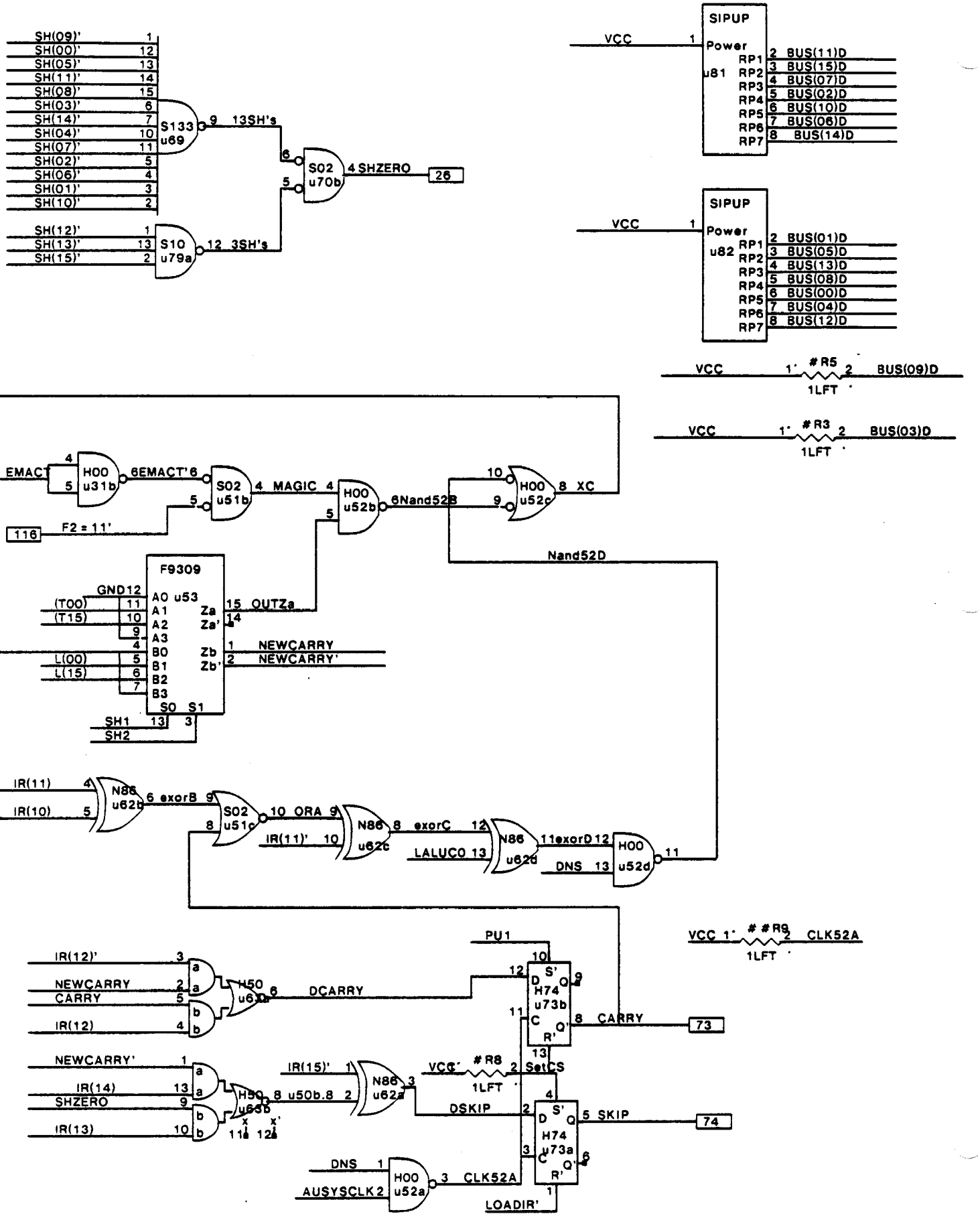
XEROX SPG	Project ALTO II	ASSEMBLY, P.W. ARITHMETRIC LOGIC UNIT	File ALU08.sil	Designer LEUNG	Rev A	Date 9/30/80	Page 08



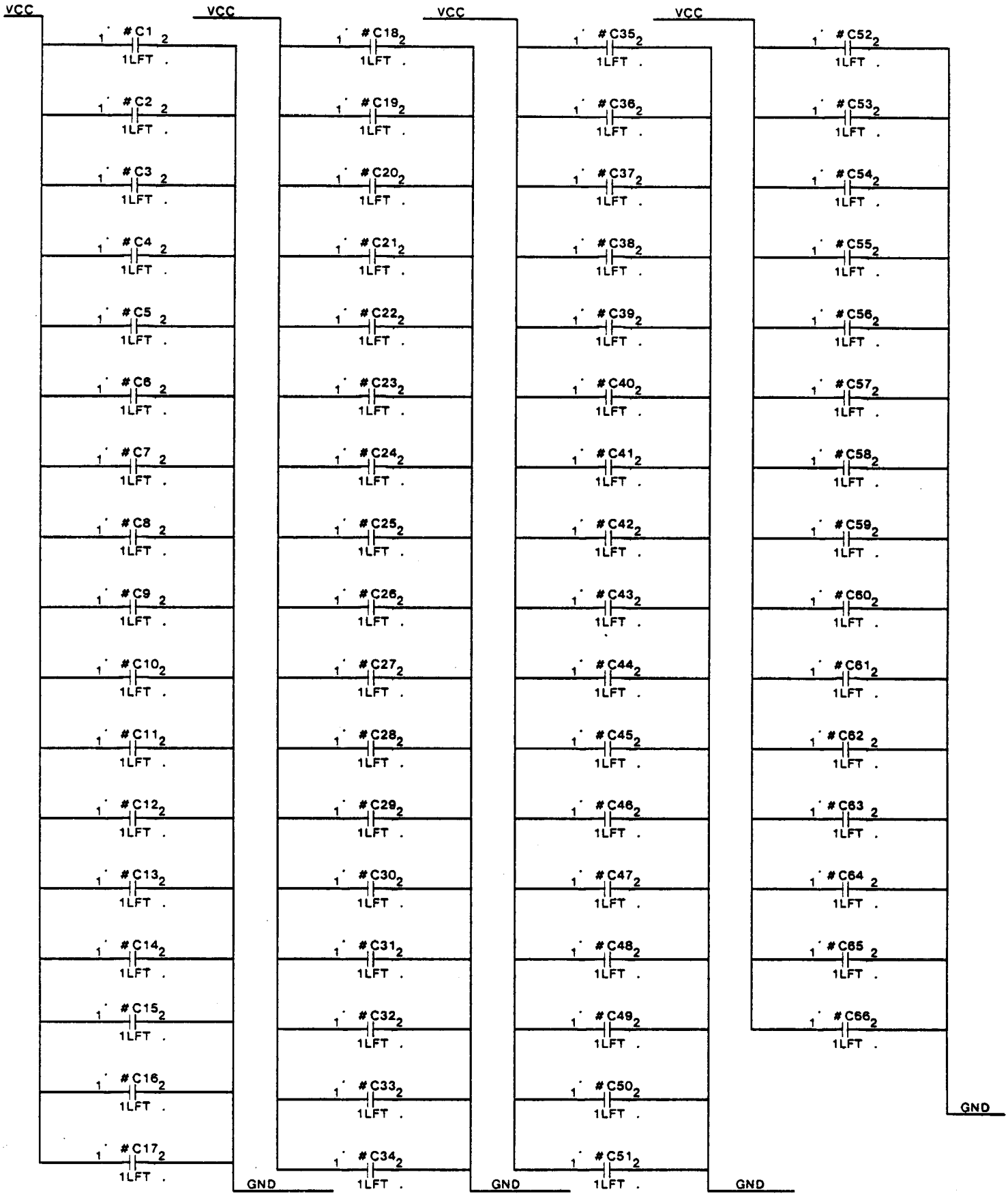
XEROX SPG	Project ALTO II	ASSEMBLY, P.W ARITHMETRIC LOGIC UNIT	File ALU09.sil	Designer LEUNG	Rev A	Date 10/1/80	Page 09



XEROX SPG	Project ALTO II	ASSEMBLY, P.W. ARITHMETRIC LOGIC UNIT	File ALU11.sil	Designer LEUNG	Rev A	Date 10/1/80	Page 11



XEROX SPG	Project ALTO II	ASSEMBLY, P.W. ARITHMETRIC LOGIC UNIT	File ALU12.sil	Designer LEUNG	Rev A	Date 10/1/80	Page 12



XEROX SPG	Project ALTO II	ASSEMBLY, P.W. ARITHMETRIC LOGIC UNIT	File ALU13.SIL	Designer LEUNG	Rev A	Date 9/30/80	Page 13