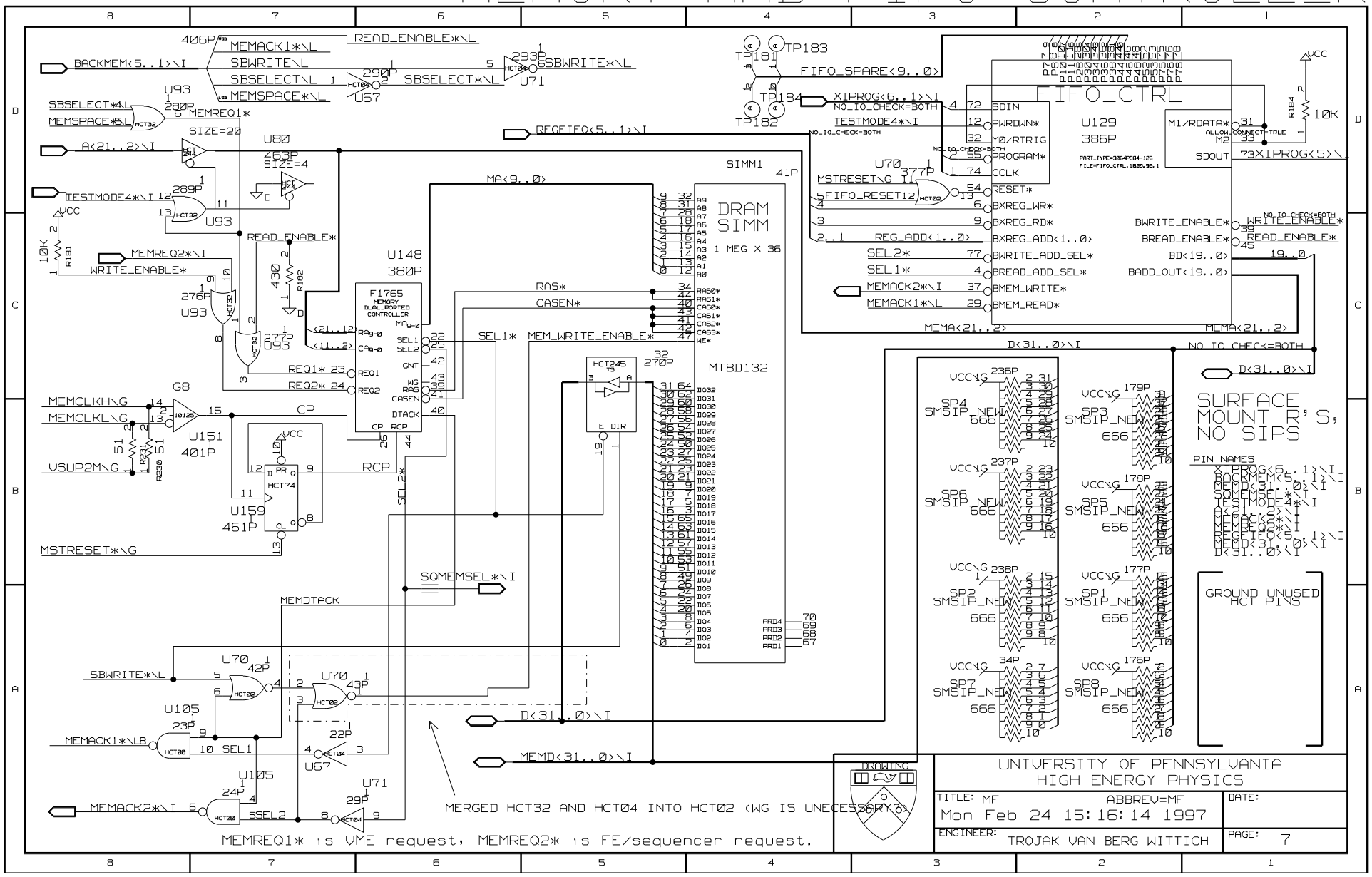MEMORY AND FIFO CONTROLLER