



PC's Real-Time Clock

PC Real-Time clock

- PC-AT's Real-Time Clock plus RAM was manufactured by Motorola Corporation
- Other companies have 'cloned' this chip
- One of the most widely used RTC chips is the DS 12887 from Dallas Semiconductor /Maxim Corp
- It uses an internal lithium battery to keep operating for over 10 years in the absence of external power
- A special battery-powered peripheral to keep track of the time and date
- Counts seconds, minutes, hours, days, day-of-the-week, date, month, and year (with leap-year compensation), valid up until the year 2100 AD, with options for 12/24-hour clock.

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- The DS12887 has a total of 128 bytes of nonvolatile RAM
- It uses 14 bytes of RAM for clock/calendar, and the other 114 bytes of RAM are for general-purpose data storage
- In the x86 IBM PC, these 114 bytes of NV-RAM are used for the CMOS configuration, where the system setups are kept before the operating system takes over
- The RTC interfaces with system software as an array of 128 bytes, accessed via i/o ports 0x70 and 0x71
 - port 0x70: address-port
 - port 0x71: data-port

Ten clock/calendar bytes

0x0	Current seconds	Range is 0..59
0x1	Alarm seconds	Range is 0..59
0x2	Current minutes	Range is 0..59
0x3	Alarm minutes	Range is 0..59
0x4	Current hours	Range is 0..23 or 1..12
0x5	Alarm hours	Range is 0..23 or 1..12
0x6	Day-of-the-Week	Range is 1..7 (Sunday=1)
0x7	Date of the Month	Range is 1..31
0x8	Current Month	Range is 1..12 (January=1)
0x9	Current Year	Range is 0..99