Experience with high-speed video recording on a small telescope

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During last four years I have recorded about 60 total occultations with frame rates 100/fps or higher with two different digital cameras (QHY5L-II-M and ASI174MM) mounted on a 20cm telescope. Both are **digital cameras** – no time inserter!

Capture SW (EZplanetary/FireCapture) inserts/records time info based on internal time running on the computer.

Computer time is maintained by Meinberg NTP server software https://www.meinbergglobal.com/english/sw/ntp.htm

Monitored with David Taylor’s nice **NTPmonitor** – thus StF Internet needed! http://www.satsignal.eu/software/net.htm#NTPmonitor

Detailed offset logs
Last – but not least – as a time source is used Raspberry Pi running as local NTP server connected with a cable directly to the recording PC. No Internet basically needed.
Can we utilise higher time resolution?

Better event timing?
Better component separation?
Closer doubles?
Better diffraction curve fit?
Faint components?
Mag limits?
Grazes?

74 Vir = SAO 139390 = HIP 66006 = XZ 19454 (4.7 mag V)
Occlusion prediction for Ondrejov CD, AsU, CZ

E. Longitude 14 46 53.2, Latitude 49 54 33.0, Alt. 530m; Telescope dia 20cm; dMag 2.0

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<th>Time</th>
<th>P</th>
<th>Star</th>
<th>Sp Mag</th>
<th>Mag</th>
<th>% Elon</th>
<th>Sun</th>
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<th>B</th>
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<th>R.A. (J2000)</th>
<th>Dec</th>
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<td>R692 = Aldebaran = alpha Tauri</td>
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ROKYCANY - PLZEŇ
CZECH REPUBLIC
R 1449  M0  6.5 mag V
200fps -> 20 fps
Future – PTP \(10^{-5} - 10^{-6} \) s instead of NTP \(10^{-3} \) s on Windows machines


Existing >15 years
Very effective
IEEE 1581 norm
Should be implemented in Windows 10 v1809