

Simultaneous Transits of Galilean Satellites During 2010

During 2010 Earth experiences 29 dual and one triple transits of Galilean satellites of Jupiter. Transits on March 23rd, March 24th and May 04th last entirely during transits of Io. On November 28th around 14:54 UT Ganymede begins transit a minute after transit of Europa has ended. Shortest and longest dual transits are listed below, followed by data for triple transit and complete list of dual transits during 2010:

Shortest Dual Transit = 2010 Jul 30 = 00h 01m 28s (Io and Ganymede)
 Longest Dual Transit = 2010 Jan 23 = 02h 55m 54s (Europa and Callisto)

Triple Transit Begins: 2010 Mar 31 23:12:31
 Triple Transit Ends: 2010 Apr 01 00:26:37
 Satellites: Io, Europa, Callisto
 Duration: 01h 14m 06s

Begin	End	Duration	Satellites	
Jan 23 07:51:24	Jan 23 10:47:18	02:55:54	Europa	Callisto
Mar 03 14:30:01	Mar 03 14:37:32	00:07:31	Io	Europa
Mar 07 03:31:17	Mar 07 04:05:07	00:33:50	Io	Europa
Mar 10 16:32:18	Mar 10 17:31:30	00:59:12	Io	Europa
Mar 14 05:33:16	Mar 14 06:58:40	01:25:24	Io	Europa
Mar 16 00:03:43	Mar 16 00:10:05	00:06:22	Io	Ganymede
Mar 17 18:34:09	Mar 17 20:24:48	01:50:39	Io	Europa
Mar 21 07:34:58	Mar 21 09:51:44	02:16:46	Io	Europa
Mar 23 02:05:21	Mar 23 04:25:22	02:20:01	Io	Ganymede
Mar 24 20:35:40	Mar 24 22:55:41	02:20:01	Io	Europa
Mar 28 09:46:40	Mar 28 11:56:19	02:09:39	Io	Europa
Mar 30 05:32:46	Mar 30 06:26:35	00:53:49	Io	Ganymede
Mar 31 22:36:58	Apr 01 00:26:37	01:49:39	Io	Callisto
Mar 31 23:12:31	Apr 01 00:56:49	01:44:18	Io	Europa
Mar 31 23:12:31	Apr 01 00:26:37	01:14:06	Europa	Callisto
Apr 04 12:39:10	Apr 04 13:57:17	01:18:07	Io	Europa
Apr 08 02:04:41	Apr 08 02:57:37	00:52:56	Io	Europa
Apr 11 15:31:01	Apr 11 15:57:55	00:26:54	Io	Europa
Apr 15 04:56:11	Apr 15 04:58:04	00:01:53	Io	Europa
May 04 14:07:56	May 04 16:27:05	02:19:09	Io	Callisto
Jun 07 06:07:49	Jun 07 07:45:13	01:37:24	Io	Callisto
Jul 30 07:30:01	Jul 30 07:31:29	00:01:28	Io	Ganymede
Aug 06 09:17:57	Aug 06 11:05:56	01:47:59	Io	Ganymede
Aug 13 11:38:12	Aug 13 13:22:06	01:43:54	Io	Ganymede
Aug 20 15:04:08	Aug 20 15:08:03	00:03:55	Io	Ganymede
Oct 31 02:22:46	Oct 31 03:25:26	01:02:40	Europa	Ganymede
Nov 07 04:44:13	Nov 07 06:59:19	02:15:06	Europa	Ganymede
Nov 14 07:24:44	Nov 14 09:56:58	02:32:14	Europa	Ganymede
Nov 21 11:06:54	Nov 21 12:23:41	01:16:47	Europa	Ganymede

All times are in Universal Time ($\Delta T = 66.2s$) and correspond to the first and last instants at which two satellite disks are in transit. Ephemeris generated by [NASA JPL's HORIZONS](#) system through one minute intervals were interpolated. Jupiter was assumed oblate spheroid with flattening of 0.06487, axial tilt was neglected for simplification of contact times computation.