Impedance calculations for the MROD-X1 PCB

12 layers
PCB 1,6 mm (1600 µm)
Cu 35 µm (= 1,38 τ)
Prepreg thickness: (1600 µm - 12 * 35 µm)/ (12 -1) = 107,3 µm
εr = 4.2 (mean between glass fiber εr = 6.1 and resin εr = 3.2 ; see: http://www.polarinstruments.com/support/cits/AP148.html)

1. signal 50 Ω: 6τ (49,5 Ω, figure 1)
2. power
3. signal 50 Ω: 3τ (impractical, figure 1)
4. ground
5. signal 50 Ω: 5τ (48,5 Ω, figure 1, 2)
6. signal 100 Ω diff: 5τ-6τ-5τ (93.9 Ω, figure 1,2)/ 50 Ω : 8 τ (53,8 Ω, figure 3)
7. signal 100 Ω diff: 5τ-6τ-5τ (93.9 Ω, figure 2) / 50 Ω : 8 τ (53,8 Ω, figure 3)
8. signal 50 Ω: 5τ (48,5 Ω, figure 2)
9. ground
10. signal 50 Ω: 3τ (impractical)
11. power
12. signal 50 Ω: 6τ (49,5 Ω)

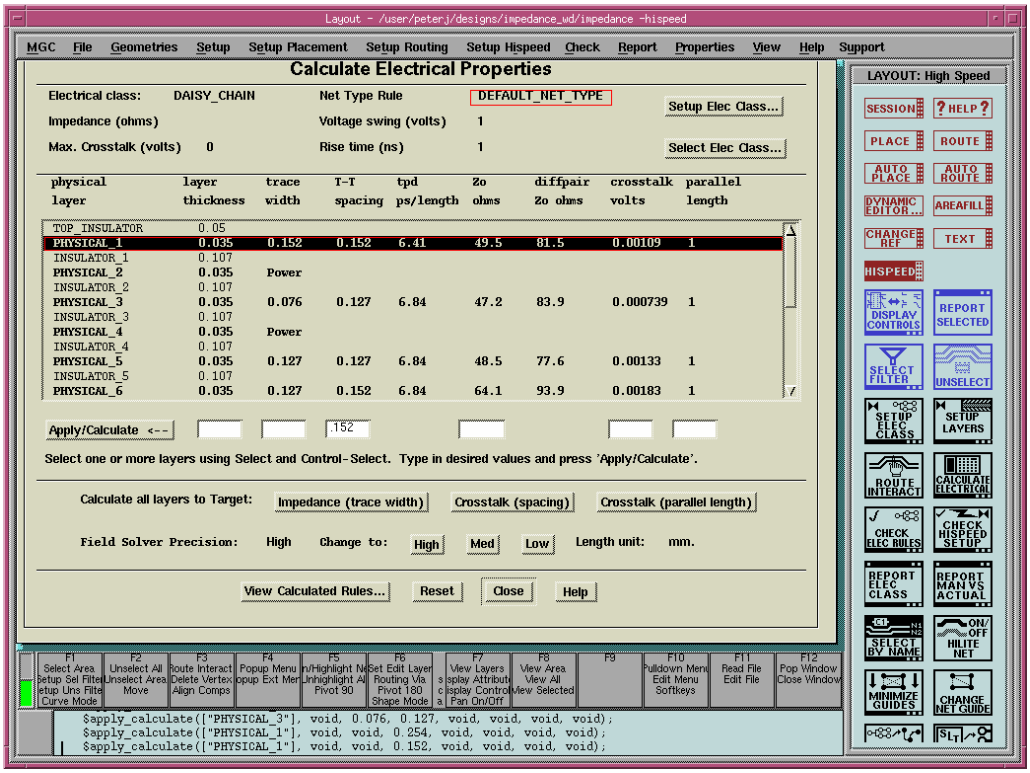

Figure 1

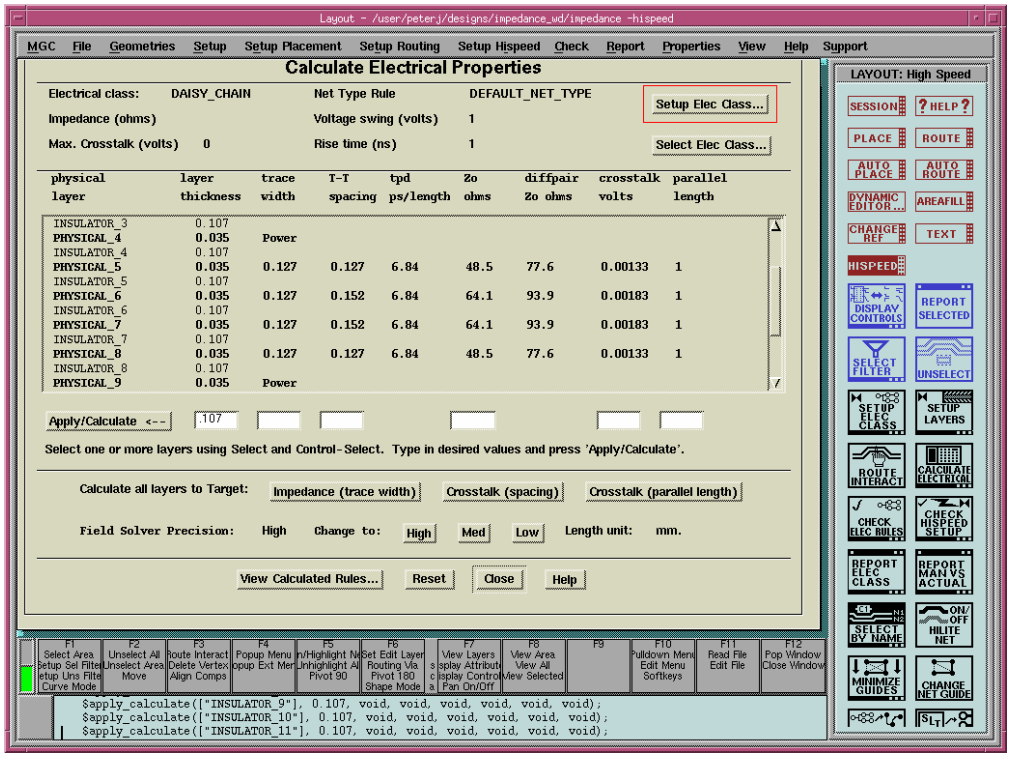

Figure 2

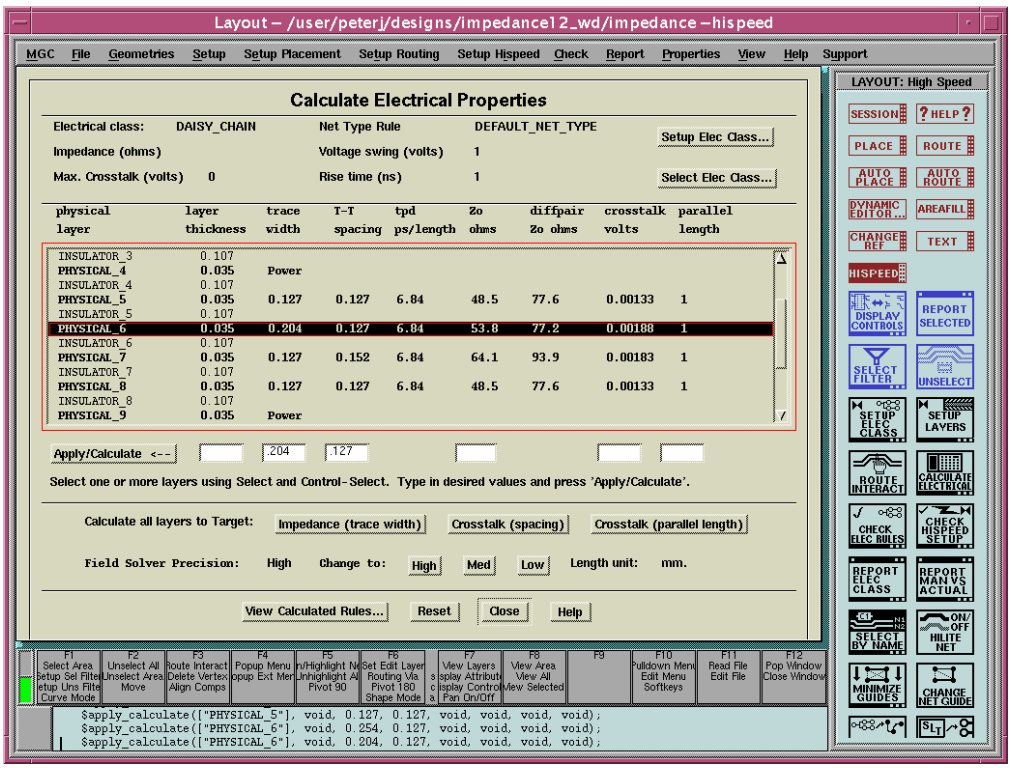

Figure 3