Attributes

```
ebe name=dcmc x_inputs=yes x_outputs=yes
Jacobian: constant
nodes: p n
state_vars:
aux_vars: ia eb tem
aux_vars_startup: ia_st eb_st tem_st
elex_aux_vars:
x_vars: wrm tl
iparms:
sparms:
rparms:
+   ra=1
+   la=1m
+   c=1
+   j=0.25
+   b_damp=0
stparms: wrm0=0 ia0=0
igparms:
n_sw_states: 0
sw_type: none
outparms: i v tem tl wrm
```

Description

dcmc.ece is a DC machine with terminals p and n satisfying following equations.

$$
\begin{aligned}
e_b &= C\,\omega_{rm}\,, \\
\tau_{em} &= C\,i_a\,, \\
L_a\,\frac{di_a}{dt} + R_a\,i_a + e_b &= v_p - v_n\,, \\
J\,\frac{d\omega_{rm}}{dt} &= \tau_{em} - \tau_L - b\,\omega_{rm}\,,
\end{aligned}
$$

where R_a, L_a, C, J, b are given by the real parameters ra, la, c, j, b_damp, respectively.

The branch current, branch voltage, electromagnetic torque, load torque, and angular frequency are made are made available as output variables i, v, tem, tl, wrm, respectively.