$\overline{n_1}' = (2x_1+1)(2u_1+1)$

$- (2x_1+1)(2\Delta_1 n_u \Delta x_{1,2})$

$- (2\Delta_1 n_x \Delta x_{1,2})(2(u_1 - \Delta_1 n_u \Delta x_{1,2})+1)$

$- 2\Delta_1 \Delta x_{1,2}[(2(x_1 - \Delta_1 n_x \Delta x_{1,2})+1) n_u$

$+ (2(u_1 - \Delta_1 n_u \Delta x_{1,2})+1) + n_u n_x \Delta x_{1,2}]$

$- 2\Delta_1$

$\overline{n_1}' = (2x_1+1)(2u_1+1)$

$- (2x_1+1)(2\Delta_1 n_u \Delta x_{1,2})$ ✓

$- (2\Delta_1 n_x \Delta x_{1,2})(2(u_1 - \Delta_1 n_u \Delta x_{1,2})+1)$ ✓

$- (2\Delta_1 \Delta x_{1,2})(2x_1+1) n_u$ ✓

$+ (2\Delta_1 \Delta x_{1,2})(2\Delta_1 n_x \Delta x_{1,2} n_u)$ ✓

$- (2\Delta_1 \Delta x_{1,2})(2(u_1 - \Delta_1 n_u \Delta x_{1,2})+1)$ ✓

$- (2\Delta_1 \Delta x_{1,2})(n_u n_x \Delta x_{1,2})$

$-2\Delta_1$

$\overline{n_1}' = (2x_1+1)(2u_1+1)$

$- (2x_1+1)(2\Delta_1 \Delta x_{1,2})(2n_u)$

$- (2\Delta_1 n_x \Delta x_{1,2})(2u_1+1)$

$+ (2\Delta_1 n_x \Delta x_{1,2})(2\Delta_1 n_u \Delta x_{1,2})$

$+ (2\Delta_1 \Delta x_{1,2})(2\Delta_1 n_x \Delta x_{1,2} n_u)$

$- (2\Delta_1 \Delta x_{1,2})(2u_1+1)$

$+ (2\Delta_1 \Delta x_{1,2})(2\Delta_1 n_u \Delta x_{1,2})$

$- (2\Delta_1 \Delta x_{1,2})(n_u n_x \Delta x_{1,2})$

$-2\Delta_1$

$n_x, n_u \in \mathbb{Z}$